

EXHIBIT 4

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

SONOS, INC.,

Plaintiff,

vs.

GOOGLE LLC,

Defendant.

Case No. 6:20-cv-00881-ADA

JURY TRIAL DEMANDED

GOOGLE LLC'S PRELIMINARY INVALIDITY CONTENTIONS

TABLE OF CONTENTS

I.	INTRODUCTION	5
II.	PRIORITY DATE OF THE ASSERTED PATENTS AND CLAIMS	5
III.	INVALIDITY UNDER 35 U.S.C. § 101.....	6
	A. ‘206, ‘966, and ‘885 Patents	7
	B. ‘033 and ‘615 Patents.....	9
IV.	’206 Patent	11
	A. Prior Art References	11
	1. Prior Art Publications	12
	2. Prior Art Systems and Products	17
	3. Obviousness Prior Art.....	20
	4. Charts Identifying Disclosure in Prior Art Invalidating Asserted Claims	21
	B. Invalidity Under 35 U.S.C. § 112	22
	1. Lack of Enablement And Written Description Under 35 U.S.C. § 112 ¶ 1.....	22
	2. Indefiniteness Under 35 U.S.C. § 112 ¶ 2	24
	3. Functional Claiming.....	26
V.	’966 Patent	26
	A. Prior Art References	26
	1. Prior Art Publications	27
	2. Prior Art Systems and Products	27
	3. Obviousness Prior Art.....	29
	4. Charts Identifying Disclosure in Prior Art Invalidating Asserted Claims	29
	B. Invalidity Under 35 U.S.C. § 112	30

1.	Lack of Enablement And Written Description Under 35 U.S.C. § 112 ¶ 1	30
2.	Indefiniteness Under 35 U.S.C. § 112 ¶ 2	32
3.	Functional Claiming.....	34
VI.	'885 Patent	34
A.	Prior Art References	34
1.	Prior Art Publications	35
2.	Prior Art Systems and Products	36
3.	Obviousness Prior Art.....	37
4.	Charts Identifying Disclosure in Prior Art Invalidating Asserted Claims	37
B.	Invalidity Under 35 U.S.C. § 112	38
1.	Lack of Enablement And Written Description Under 35 U.S.C. § 112 ¶ 1	38
2.	Indefiniteness Under 35 U.S.C. § 112 ¶ 2	40
3.	Functional Claiming.....	41
VII.	'033 Patent	42
A.	Prior Art References	42
1.	Prior Art Publications	42
2.	Prior Art Systems and Products	55
3.	Obviousness Prior Art.....	57
4.	Charts Identifying Disclosure in Prior Art Invalidating Asserted Claims	58
B.	Invalidity Under 35 U.S.C. § 112	59
1.	Lack of Enablement And Written Description Under 35 U.S.C. § 112 ¶ 1	59
2.	Indefiniteness Under 35 U.S.C. § 112 ¶ 2	61

VIII.	'615 Patent	64
A.	Prior Art References	64
1.	Prior Art Publications	65
2.	Prior Art Systems and Products	65
3.	Obviousness Prior Art.....	67
4.	Charts Identifying Disclosure in Prior Art Invalidating Asserted Claims	67
B.	Invalidity Under 35 U.S.C. § 112	68
1.	Lack of Enablement And Written Description Under 35 U.S.C. § 112 ¶ 1	68
2.	Indefiniteness Under 35 U.S.C. § 112 ¶ 2	71
IX.	OBVIOUSNESS	74
A.	'206 Patent, '966 Patent, and '85 Patent.....	77
1.	General state of the art.	77
2.	Obviousness combinations.....	78
B.	'033 Patent and '615 Patents.....	84
1.	General state of the art.	84
2.	Obviousness combinations.....	85
X.	DOCUMENT PRODUCTION ACCOMPANYING PRELIMINARY INVALIDITY CONTENTIONS	89
XI.	OTHER RESERVATIONS AND EXPLANATIONS	89

I. INTRODUCTION

Pursuant to the Amended Scheduling Order (Dkt. 48), Defendant Google LLC provides these Preliminary Invalidity Contentions to Plaintiff Sonos, Inc. (“Sonos”) for the following patents (collectively, “Asserted Patents”)¹ and claims (collectively, “Asserted Claims”) identified as asserted in Sonos’s Preliminary Infringement Contentions and Disclosure of Priority Dates and Dates of Conception/Reduction to Practice served on December 11, 2020 (“Infringement Contentions”):

- ’206 Patent (claims 1-5, 7 10-19) (’206 Asserted Claims)
- ’966 Patent (claims 1-4, 6-12, 14-20) (’966 Asserted Claims)
- ’885 Patent (claims 1-3, 5-10, 12-17, and 19-20) (’885 Asserted Claims)
- ’615 Patent (claims 1-3, 6-9, 11-15, 18-21, 23-26, 28-29) (’615 Asserted Claims)
- ’033 Patent (claims 1-2, 4, 7-13, 15-16) (’033 Asserted Claims)

Google addresses the invalidity of the Asserted Claims and concludes with a description of their document productions and identification of additional reservations and explanations.

II. PRIORITY DATE OF THE ASSERTED PATENTS AND CLAIMS

Sonos asserts the following priority dates in its December 11, 2020 Infringement Contentions:

- ’206 Patent (claims 1-5, 7 10-19): September 12, 2006
- ’966 Patent (claims 1-4, 6-12, 14-20): September 12, 2006
- ’885 Patent (claims 1-3, 5-10, 12-17, and 19-20): September 12, 2006
- ’615 Patent (claims 1-3, 6-9, 11-15, 18-21, 23-26, 28-29): December 30, 2011
- ’033 Patent (claims 1-2, 4, 7-13, 15-16): December 30, 2011

¹ The Asserted Patents are U.S. Patent Nos. 9,344,206 (“’206 Patent”); 10,469,966 (“’966 Patent”); 10,779,033 (“’033 Patent”); 9,967,615 (“’615 Patent”); 10,848,885 (“’885 Patent”).

It is Sonos' burden to show entitlement to its asserted priority dates, and Sonos has failed to meet that burden.² As described below, elements of the Asserted Claims lack written description and enablement support, and those Asserted Claims therefore cannot claim priority to earlier continuation applications on the face of the Asserted Patents.

III. INVALIDITY UNDER 35 U.S.C. § 101³

To be patentable subject matter under § 101, a claim must be directed to one of four eligible subject matter categories: “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101. “Claims that fall within one of the four subject matter categories may nevertheless be ineligible if they encompass laws of nature, physical phenomena, or abstract ideas.” *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980). The Supreme Court established a two-step test for deciding the subject matter eligibility of claims under § 101. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355 (2014). First, the claims must be analyzed to determine whether they are drawn to one of the statutory exceptions. *Id.* Claims that invoke generic computer components instead of reciting specific improvements in computer capabilities are abstract under this first step. *See Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335-36 (Fed. Cir. 2016). Second, the elements of the claims must be viewed both individually and as an ordered combination to see if there is an “inventive concept.” *Id.* The mere fact that a claim recites or implies that an abstract idea is implemented using a general-purpose computer

² For example, Sonos did not produce any documents in support of conception and reduction to practice for the '885 patent.

³ The Court's OGP requires only “an identification” of claims that Google contends are directed to ineligible subject matter. While, in the interest of disclosure, Google has gone beyond what is required by the OGP, its patent ineligibility disclosures are exemplary and nothing herein shall limit or waive Google's patent ineligibility arguments. Google further reserves the right to modify its arguments as appropriate.

does not supply an inventive concept necessary to satisfy § 101. *See Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1355 (Fed. Cir. 2016); *Alice*, 134 S. Ct. at 2357-59.

All of the Asserted Claims are directed to ineligible subject matter under 35 U.S.C. § 101 and applicable case law authority.⁴ The descriptions of the alleged inventions below accept (for this purpose only) that Sonos' preliminary infringement contentions accurately identify the scope of the claims. The descriptions of the alleged inventions below are not intended as and are not an admission regarding the proper scope of the claims.

A. '206, '966, and '885 Patents

The Asserted Claims of the '206, '966, and '885 Patents are each directed to an abstract idea of conventional speaker grouping, receiving and displaying info and/or alarm clock functionality. Each asserted claim fails to satisfy the requirements of 35 U.S.C. § 101.

Under Sonos's interpretation, independent claim 1 of the '206 patent requires, in essence, grouping speakers together when paired with a computer or portable computing device. The

⁴ *See, e.g., Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289 (2012); *Trading Techs. Int'l, Inc. v. IBG, LLC*, 921 F.3d 1084 (Fed. Cir. 2019); *ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759 (Fed. Cir. 2019); *SAP America, Inc. v. InvestPic, LLC*, 898 F.3d 1161 (Fed. Cir. 2018); *Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335 (Fed. Cir. 2018); *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 882 F.3d 1121 (Fed. Cir. 2018); *Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329 (Fed. Cir. 2017), *cert. denied*, 139 S. Ct. 378 (2018); *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332 (Fed. Cir. 2017); *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229 (Fed. Cir. 2016); *Affinity Labs of Texas, LLC v. DIRECTV, LLC*, 838 F.3d 1253 (Fed. Cir. 2016); *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016); *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016); *Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369 (Fed. Cir. 2016); *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363 (Fed. Cir. 2015); *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343 (Fed. Cir. 2015); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359 (Fed. Cir. 2015); *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat'l Ass'n*, 776 F.3d 1343 (Fed. Cir. 2014); *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014); *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350 (Fed. Cir. 2014); *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344 (Fed. Cir. 2014); *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366 (Fed. Cir. 2011).

stated purpose of the '206 and '966 patents to “control[] a plurality of multimedia players, or simply players, in groups.” '206 Patent at 2:28-30. The patents assert that there was “a need for dynamic control of the audio players as a group” and that “[w]ith a minimum manipulation, the audio players may be readily grouped” according to the alleged invention. *Id.* at 2:11-15. The patent recognized that although speaker grouping was well known in the art, prior to computerizing this process, the systems were “generally either hard-wired or controlled by a pre-configured and pre-programmed controller.” *Id.* at 1:56-60. The alleged invention, therefore, is nothing more than computerizing the age-old process of manually plugging speakers in to reproduce the same or different audio sources.

Under Sonos’s interpretation, independent claim 1 of the '206 patent can similarly be recognized as a computer-controlled alarm clock. For example, the patent describes the invention as follows: “According to one embodiment, each zone player in a scene may be set up for different alarms. For example, a ‘Morning’ scene includes three zone players, each in a bedroom, a den, and a dining room. After selecting the scene, the user may set up an alarm for the scene as whole. As a result, each of the zone players will be activated at a specific time.” '206 Patent at 9:36-41. The patent therefore concedes that the “scene” information, to the extent that Sonos applies any meaning to the term, is simply conventional alarm clock functionality. That alarm clock may play audio upon request from the computerized controller and may play that alarm in different “zones,” but its core functionality is unchanged from a conventional alarm clock.

The dependent claims do not add anything that changes the character of the claims from being directed to the same abstract idea as all the other claims. For example, the dependent claims require “displaying” the zones, using a user interface to interact with the zones, setting a

volume level, and saving zone-related information. These are all conventional aspects of a computerized device or a speaker, and they do not add any non *de minimis* contributions to the invention.

The '966 Patent suffers from the same flaws. Although the '966 Patent requires the user to create and use different speaker groups, the core functionality is no different from conventional speaker grouping, receiving and displaying info, or alarm clocks as described above.

Similarly, the '885 Patent also suffers from the same flaws. Although the '885 Patent requires the user to create and use different speaker groups, the core functionality is no different from conventional speaker grouping, receiving and displaying info, or alarm clocks as described above.

Moreover, the Asserted Claims of the '206, '966 and '885 patents lack any inventive step to elevate the idea to patentability. As the references cited in these Invalidity Contentions demonstrate, the alleged inventions merely apply conventional and well-understood techniques. The claims merely require the claimed judicial exceptions to be applied and only include instructions to implement the processes on a computer. The independent and dependent claims at most add insignificant extra-solution activity to the judicial exceptions or generally link the judicial exception to the computer and multimedia fields, which is insufficient to transform the claims into patentable subject matter.

B. '033 and '615 Patents

The independent claims of the '615 and '033 Patents are each directed to an abstract idea of playing music from a remote music source and/or transferring playback from one device to another. Similar ideas related to accessing media remotely have been considered and found patent-ineligible as abstract. *See e.g. Kaavo, Inc. v. Cognizant Technology Solutions Corp., Inc.*,

14-1192-LPS-CJB (“setting up and managing a cloud computing environment” as abstract idea), *Intellectual Ventures I, LLC v. Motorola Mobility LLC*, 81 F. Supp. 3d 356, 366 (D. Del. 2015) (“distributing software updates to a computer” as abstract idea), *Cloud Satchel, LLC v. Amazon.com, Inc., et al* (2014, D. Del.) (cataloguing documents to facilitate their retrieval from storage in the field of remote computing as the abstract idea). Further, humans have been transferring playback from one device to another long before the filing of the Asserted Claims. Thus, the concept of transferring playback from one device to another is nothing more than the automation of a process that can be performed by humans. *Credit Acceptance Corp. v. Westlake Services*, 859 F.3d 1044, *1055 (Fed. Cir. 2017) (“Our prior cases have made clear that mere automation of manual processes using generic computers does not constitute a patentable improvement in computer technology.”); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015) (“At best, the claims describe the automation of the fundamental economic concept of offer-based price optimization through the use of generic-computer functions.”).

Under Sonos’s interpretation, the independent claims of the ’615 and ’033 patents require, in essence, controlling a playback device to access and play back content. But the ’615 and ’033 patents itself recognized as known in the art that a “user can access audio, video, or both audio and video content over the Internet through an online store, an Internet radio station, an online music service, an online movie service.” ’615 Patent, 1:21-26. The alleged invention is thus nothing more than remote controlling the age-old process of accessing media from a remote source.

The dependent claims do not add anything that changes the character of the claims as being directed to the same abstract idea as all the other claims. For example, the dependent claims require certain user operations to control the remote playback devices, playing back the

media on a combination of playback devices, or synchronizing the audio output. These were all conventional aspects of remote controls for media systems, and multi-speaker media systems, and they do not add any non *de minimis* contributions to the invention.

Moreover, the Asserted Claims of the '615 and '033 patents lack any inventive step to elevate the idea to patentability. As the references cited in these Invalidity Contentions demonstrate, the alleged inventions merely apply conventional and well-understood techniques. The claims merely require the claimed judicial exceptions to be applied and only include instructions to implement the processes on a computer. The independent and dependent claims at most add insignificant extra-solution activity to the judicial exceptions or generally link the judicial exception to the computer and multimedia fields, which is insufficient to transform the claims into patentable subject matter.

IV. '206 PATENT

A. Prior Art References

Google identifies the following prior art now known to Google to anticipate or render obvious the '206 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), (f), and/or (g), and/or § 103, either expressly or inherently as understood by a POSITA (person of ordinary skill in the art).

At this time, Google contends that the following prior art references described below anticipate or render obvious, either alone or in combination, one or more of the Asserted Claims of the '206 Patent. These prior art references also provide a description of the level of skill in the art and provide background information showing the knowledge of a person of skill in the art. Google reserves the right to rely on these references for those purposes. In these invalidity contentions, including the exhibits, any citation to a printed publication or other reference

describing a prior art system should also be construed to include a reference to the prior art system itself.

1. Prior Art Publications

The following patents and publications are prior art to the '206 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), (f) and/or describes systems under (g). Google incorporates by reference all prior art references cited on the face of the '206 patent, related patents, and all foreign counterparts. Google further incorporates by reference any prior art references identified in the file history of the same. Google reserves the right to rely upon foreign counterparts of the U.S. Patents identified in these invalidity contentions, U.S. counterparts of foreign patents and foreign patent applications identified in these invalidity contentions, U.S. and foreign patents and patent applications corresponding to articles and publications identified in these invalidity contentions, and any systems, products, or prior inventions related to any references identified in these invalidity contentions.

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3. US 8,797,926
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7. US 2008/0109867
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12. US 2007/0217400

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16. US 2004/0223622

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18. US 8,107,639

19. US 7,805,210

20. US 7,006,645

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23. US 7,929,961

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41. Sonos Digital Music System User Guide, August 2005
42. Sonos Digital Music System ZP80 Bundle Quick Setup Instructions, 2004
43. Sonos Digital Music System Zoneplayer ZP80 Setup Guide, January 2006
44. Sonos ZonePlayer 100 Spec Sheet, 2006
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49. Sonos Digital Music System User Guide, January 2006
50. Yamaha DME Designer Version 2.0 Owner's Manual, 2004
51. Yamaha DME64N / DME24N Owner's Manual, 2004
52. TOA System VM-2120/VM-2240 Instruction Manual

53. Xantech Model MRC88 Eight Zone – Eight Source Audio/Video Controller/Amplifier System Installation Instructions, 2003
54. Xantech Model MRC44 Four Zone – Four Source Audio/Video Controller/Amplifier System, 2002
55. Bose Lifestyle 50 System, Owner's Guide, October 17, 2001
56. The Bose Lifestyle Amplifier, Owner's Guide, January 4, 2002
57. Audio Review, Bose Lifestyle 50 Mini Systems
58. Sonos Forums (e.g., <https://en.community.sonos.com/>), 2004-2006
59. Sonos Webpage, dated March 22, 2005
60. Crestron AES Operations Guide, 2006
61. Crestron CEN-IDOC, Interface for Apple iPod, Operation Guide, 2006
62. IBM, Home Director Owner's Manual, May 1999
63. IBM, Home Director Installation and Service Manual, June 1998
64. DAB1 Distributed Audio System Installation Instructions, March 20, 2006
65. Instruction Manual Sonance iPort
66. 2010 Sonance Product Guide
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84. Forbes, Sonos Zone Player, May 10, 2005
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87. CNN, Carry a Tune From Room to Room, March 21, 2005
88. David Pogue, Be the Maestro of the House, with a Remote, April 20, 2006
89. SVC, Crestron Adagio Wins Top Honor at CEDIA, September 26, 2006
90. John Sciacca, Crestron Adagio Entertainment System, October 3, 2006
91. AVS Forums (e.g., <https://www.avforums.com/threads/is-crestron-just-overpriced.280596/>), 2005-2006
92. Remote Central Forums (e.g., <http://www.remotecentral.com/cgi-bin/mboard/rc-custom/thread.cgi?8523>), 2006

93. UPnP AV Architecture: 1 For Universal Plug and Play Version 1.0,
Status: Approved Design Document, Date: June 25, 2002

94. Bluetooth protocol before Dec. 30, 2011, including Bluetooth 4.0

Google additionally identifies and relies on patent or publication references that describe or are otherwise related to the prior art systems identified below. Google's investigation into prior art patent and publication references remains ongoing, and Google reserves the right to identify and rely on additional patent or publication references that are identified through further investigation or discovery. Google reserves the right to supplement as further prior art is identified through investigation or discovery.

2. Prior Art Systems and Products

Google also contends that the asserted claims of the '206 Patent are invalid based on public knowledge and uses and/or offers for sale or sales of products and services that are prior art under 35 U.S.C. § 102(a) and/or (b); and/or prior inventions made in the United States by other inventors who had not abandoned, suppressed, or concealed them under 35 U.S.C. § 102(g), and that anticipate or render obvious under 35 U.S.C. § 103 the asserted claims.

Google incorporates by reference the patent/publications listed in the prior section. To the extent the cited references disclose and describe particular products and/or software programs that were publicly known and/or in public use prior to the priority date of the '206 Patent, in addition to each publication itself serving as a prior art reference under 35 U.S.C. § 102, the various products and/or software programs described in the publications may also serve as grounds for invalidity under 35 U.S.C. § 102 because they were in public use, in which case it would have been obvious to a person of ordinary skill in the art to combine the actual systems in public use with the published documents describing those systems because the documents described systems in public use and refer to them throughout

The following lists prior art products or services that invalidate the '206 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b) and/or (g). Google may rely on all versions of the following prior art systems commercially sold, publicly known or used before the priority date of the '206 Patent, including documents and source code describing the same.

1. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Crestron Adagio AMS System. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
2. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the IBM Home Director. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
3. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Bose Lifestyle. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
4. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Avega Systems. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
5. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Audiotron. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
6. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Onkyo AV Receiver, including TX-SR876 and TX-NR906. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
7. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Tymphony. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.

8. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Sonos Digital Music System. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
9. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Control4. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
10. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Harmony Home Automation. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
11. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Colorado VNET. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
12. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the C-Media Xear. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
13. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Yamaha MusicCAST. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
14. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Airport Express. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
15. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the DLNA. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
16. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Cd3o System. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.

17. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Netstreams System. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
18. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Sonance DAB1. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
19. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Rudeo. Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.

Google's investigation into prior art systems remains ongoing and Google reserves the right to identify and rely on systems that represent different versions or are otherwise related variations of the systems identified above. Google may use physical samples, executable software, or source code as evidence of the relevant functionality of these prior art products or services. Google may make available for inspection any physical samples of products, systems, or software listed above, and/or any source code therefor, that it has in its possession or that becomes available in the future during discovery.

3. Obviousness Prior Art

Google identifies the following additional prior art now known to Google that, in combination with the foregoing patents, publications, and systems, render obvious the '206 Asserted Claims under 35 U.S.C. § 103, either expressly or inherently as understood by a POSITA, for at least the reasons stated in Section IX. In addition to the prior art references discussed above, which may be combined, Google discloses Exhibits Rider A – Rider H, which each disclose certain areas of prior art known in the field and which may be combined with the disclosed references to render obvious the Asserted Claims.

1. Rider A – speaker grouping

2. Rider B – storing group information at a speaker
3. Rider C – remote control of speaker groups
4. Rider D – dynamic modification of speaker groups
5. Rider E – creating or using “scene” information
6. Rider F – graphical user interface
7. Rider G – naming a group
8. Rider H – overlapping or non-overlapping groups

Google provides further disclosure regarding obviousness in Section IX, below.

4. Charts Identifying Disclosure in Prior Art Invalidating Asserted Claims

Google submits the following charts identifying specific locations in each alleged item of prior art each limitation of each asserted claim is found are attached as Exhibits 206-1 to 206-9. The contents of Exhibits 206-1 to 206-9, in combination with the foregoing patents, publications, and systems, anticipate and/or render obvious the '206 Patent Asserted Claims under 35 U.S.C. § 102, either expressly or inherently, and under § 103, in each case, as understood by a POSITA.

Exhibit No.	Exhibit (claim chart explaining bases for invalidity of '206 Patent)
206-1	U.S. 7,571,014 (Lambourne)
206-2	CA 2 533 852 (Millington)
206-3	U.S. 8,239,559 (Rajapakse)
206-4	Sonance DAB1 System
206-5	Sonos Forums
206-6	Sonos System
206-7	Bose System
206-8	Crestron Adagio

206-9	Home Director
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B. Invalidity Under 35 U.S.C. § 112

Pursuant to the Amended Scheduling Order (Dkt. 48), Google identifies below grounds of invalidity under 35 U.S.C. § 112. The grounds identified below both individually and collectively render the '206 Asserted Claims invalid under the statutory requirements of § 112. By identifying certain claim language below, Google does not imply that such language is entitled to any patentable weight when comparing the claim as a whole to the prior art. Google's identifications are made based on Google's present understanding of the Asserted Claims and Sonos's apparent interpretation of these claims as reflected in its Infringement Contentions, and Google reserves the right to amend these identifications, including in response to claim constructions and claim interpretations that would render claim limitations not enabled, lacking in written description, or indefinite.

1. Lack of Enablement And Written Description Under 35 U.S.C. § 112 ¶ 1

Based on Google's present understanding of the Asserted Claims and Sonos's apparent interpretation of these claims as reflected in its Infringement Contentions, the '206 Asserted Claims may fail to satisfy the requirements of § 112, ¶ 1 because the specification and original patent application fail to provide an enabling disclosure of and written description support for at least the following limitations and terms within the cited phrases (or terms contained therein):

- “zone”
- “zone configuration”
- “controller”
- “multimedia controller”

- “maintained”
- “zone scene”
- “group configuration”
- “independent playback device”
- “wherein the zone configuration characterizes one or more zone scenes”
- “each zone scene identifying a group configuration associated with two or more of the plurality of independent playback devices”
- “receive, via a network interface, a zone configuration from a first independent playback device of a plurality of independent playback devices” / “receiving, via the network by a controller device, a zone configuration from a first independent playback device of a plurality of independent playback devices” / “receive, via a network interface, a zone configuration from a first independent playback device of a plurality of independent playback devices”
- “wherein the zone configuration is configured via the controller”
- “wherein the zone configuration is . . . maintained at the first independent playback device”
- “selectable indication”
- “cause a selectable indication of the received zone configuration to be displayed” / “causing, by the controller device, a selectable indication of the received zone configuration to be displayed”
- “invoked”
- “cause one or more of the zone scenes to be invoked by two or more of the plurality of independent playback devices”
- “causing an indication of at least one of the one or more zone scenes to be displayed” / “causing an indication of at least one of the one or more zone scenes to be displayed”
- “indication of the group configuration”
- “a command to save at least one of the one or more zone scenes”

- “cause at least one of the one or more zone scenes to be activated” / “causing, by the controller device, at least one of the one or more zone scenes to be activated”
- “one or more zone scenes is associated with a name”
- “displaying an indication of the group configuration identified by the at least one of the one or more zone scenes to be displayed”

2. Indefiniteness Under 35 U.S.C. § 112 ¶ 2

Based on Google’s present understanding of the Asserted Claims and Sonos’s apparent interpretation of these claims as reflected in its Infringement Contentions, the ’206 Asserted Claims may fail to satisfy the requirements of § 112, ¶ 2 because the precise scope of at least the phrases listed below (or terms contained therein) cannot be determined with reasonable certainty by a POSITA when reading the claims in light of the specification and prosecution history.

- “zone”
- “zone configuration”
- “multimedia controller”
- “controller”
- “maintained”
- “zone scene”
- “group configuration”
- “independent playback device”
- “wherein the zone configuration characterizes one or more zone scenes”
- “each zone scene identifying a group configuration associated with two or more of the plurality of independent playback devices”
- “receive, via a network interface, a zone configuration from a first independent playback device of a plurality of independent playback devices” / “receiving, via the network by a controller device, a zone configuration from a first independent playback device of a plurality of independent playback devices” / “receive, via a network interface, a zone

configuration from a first independent playback device of a plurality of independent playback devices”

- “wherein the zone configuration is configured via the controller”
- “wherein the zone configuration is . . . maintained at the first independent playback device”
- “selectable indication”
- “selectable indication of the received zone configuration”
- “cause a selectable indication of the received zone configuration to be displayed” / “causing, by the controller device, a selectable indication of the received zone configuration to be displayed”
- “invoked”
- “cause one or more of the zone scenes to be invoked by two or more of the plurality of independent playback devices”
- “causing an indication of at least one of the one or more zone scenes to be displayed” / “causing an indication of at least one of the one or more zone scenes to be displayed”
- “wherein causing the selectable indication of the at least one of the one or more zone scenes to be displayed”
- “indication of the group configuration”
- “a command to save at least one of the one or more zone scenes”
- “before receiving the zone configuration, send, to one of the plurality of independent playback devices, a command to save at least one of the one or more zone scenes” / “before receiving the zone configuration, sending, to one of the plurality of independent playback devices, a command to save at least one of the one or more zone scenes”
- “cause at least one of the one or more zone scenes to be activated” / “causing, by the controller device, at least one of the one or more zone scenes to be activated”
- “one or more zone scenes is associated with a name”
- “displaying an indication of the group configuration identified by the at least one of the one or more zone scenes to be displayed”

3. Functional Claiming

§ 112 ¶ 6 limits functional claiming. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349–51 (Fed. Cir. 2015) (en banc) (imposing new standard of indefiniteness to address “proliferation of functional claiming untethered to § 112, para. 6 and free of the strictures set forth in the statute”); *Function Media, LLC v. Google, Inc.*, 708 F.3d 1310, 1319 (Fed. Cir. 2013). It allows the patentee to claim the invention by the functions it performs, but limits the scope of those claims to the specific solutions disclosed in the specification—because in this country, the patentee cannot claim more than what she invented. *MySpace, Inc. v. GraphOn Corp.*, 672 F.3d 1250, 1256 (Fed. Cir. 2012). The following claim limitations are functional and thus are subject to § 112 ¶ 6 requirements and are indefinite for lack of structures in the specification, and are also not enabled because of the lack of structures:

- “cause....”
- “causing....”

V. '966 PATENT

A. Prior Art References

Google identifies the following prior art now known to Google to anticipate or render obvious the '966 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), (f), and/or (g), and/or § 103, either expressly or inherently as understood by a POSITA (person of ordinary skill in the art).

At this time, Google contends that the following prior art references described below anticipate or render obvious, either alone or in combination, one or more of the Asserted Claims of the '966 Patent. These prior art references also provide a description of the level of skill in the art and provide background information showing the knowledge of a person of skill in the art. Google reserves the right to rely on these references for those purposes. In these invalidity

contentions, including the exhibits, any citation to a printed publication or other reference describing a prior art system should also be construed to include a reference to the prior art system itself.

1. Prior Art Publications

The following patents and publications are prior art to the '966 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g). Google incorporates by reference all prior art references cited on the face of the '966 patent, related patents, and all foreign counterparts. Google further incorporates by reference any prior art references identified in the file history of the same. Google reserves the right to rely upon foreign counterparts of the U.S. Patents identified in these invalidity contentions, U.S. counterparts of foreign patents and foreign patent applications identified in these invalidity contentions, U.S. and foreign patents and patent applications corresponding to articles and publications identified in these invalidity contentions, and any systems, products, or prior inventions related to any references identified in these invalidity contentions.

See prior art publications identified in Section IV.A.

Google additionally identifies and relies on patent or publication references that describe or are otherwise related to the prior art systems identified below. Google's investigation into prior art patent and publication references remains ongoing, and Google reserves the right to identify and rely on additional patent or publication references that are identified through further investigation or discovery. Google reserves the right to supplement as further prior art is identified through investigation or discovery.

2. Prior Art Systems and Products

Google also contends that the asserted claims of the '966 Patent are invalid based on public knowledge and uses and/or offers for sale or sales of products and services that are prior

art under 35 U.S.C. § 102(a) and/or (b); and/or prior inventions made in the United States by other inventors who had not abandoned, suppressed, or concealed them under 35 U.S.C. § 102(g), and that anticipate or render obvious under 35 U.S.C. § 103 the asserted claims.

Google incorporates by reference the patent/publications listed in the prior section. To the extent the cited references disclose and describe particular products and/or software programs that were publicly known and/or in public use prior to the priority date of the '966 Patent, in addition to each publication itself serving as a prior art reference under 35 U.S.C. § 102, the various products and/or software programs described in the publications may also serve as grounds for invalidity under 35 U.S.C. § 102 because they were in public use, in which case it would have been obvious to a person of ordinary skill in the art to combine the actual systems in public use with the published documents describing those systems because the documents described systems in public use and refer to them throughout

The following lists prior art products or services that invalidate the '966 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b) and/or (g). Google may rely on all versions of the following prior art systems commercially sold, publicly known or used before the priority date of the '966 Patent, including documents and source code describing the same.

See prior art systems and products identified in Section IV.A.

Google's investigation into prior art systems remains ongoing and Google reserves the right to identify and rely on systems that represent different versions or are otherwise related variations of the systems identified above. Google may use physical samples, executable software, or source code as evidence of the relevant functionality of these prior art products or services. Google may make available for inspection any physical samples of products, systems,

or software listed above, and/or any source code therefor, that it has in its possession or that becomes available in the future during discovery.

3. Obviousness Prior Art

Google identifies the following additional prior art now known to Google that, in combination with the foregoing patents, publications, and systems, render obvious the '966 Asserted Claims under 35 U.S.C. § 103, either expressly or inherently as understood by a POSITA, for at least the reasons stated in Section IX. In addition to the prior art references discussed above, which may be combined, Google discloses Exhibits Rider A – Rider H, which each disclose certain areas of prior art known in the field and which may be combined with the disclosed references to render obvious the Asserted Claims.

See Riders identified in Section IV.A.

Google provides further disclosure regarding obviousness in Section IX, below.

4. Charts Identifying Disclosure in Prior Art Invalidating Asserted Claims

Google submits the following charts identifying specific locations in each alleged item of prior art each limitation of each asserted claim is found are attached as Exhibits 966-1 to 966-9. The contents of Exhibits 966-1 to 966-9 in combination with the foregoing patents, publications, and systems, anticipate and/or render obvious the '966 Patent Asserted Claims under 35 U.S.C. § 102, either expressly or inherently, and under § 103, in each case, as understood by a POSITA.

Exhibit No.	Exhibit (claim chart explaining bases for invalidity of '966 Patent)
966-1	U.S. 7,571,014 (Lambourne)
966-2	CA 2 533 852 (Millington)
966-3	U.S. 8,239,559 (Rajapakse)
966-4	Sonance DAB1 System

966-5	Sonos Forums
966-6	Sonos System
966-7	Bose System
966-8	Crestron Adagio
966-9	Home Director

B. Invalidity Under 35 U.S.C. § 112

Pursuant to the Amended Scheduling Order (Dkt. 48), Google identifies below grounds of invalidity under 35 U.S.C. § 112. The grounds identified below both individually and collectively render the '966 Asserted Claims invalid under the statutory requirements of § 112. By identifying certain claim language below, Google does not imply that such language is entitled to any patentable weight when comparing the claim as a whole to the prior art. Google's identifications are made based on Google's present understanding of the Asserted Claims and Sonos's apparent interpretation of these claims as reflected in its Infringement Contentions, and Google reserves the right to amend these identifications, including in response to claim constructions and claim interpretations that would render claim limitations not enabled, lacking in written description, or indefinite.

1. Lack of Enablement And Written Description Under 35 U.S.C. § 112 ¶ 1

Based on Google's present understanding of the Asserted Claims and Sonos's apparent interpretation of these claims as reflected in its Infringement Contentions, the '966 Asserted Claims may fail to satisfy the requirements of § 112, ¶ 1 because the specification and original patent application fail to provide an enabling disclosure of and written description support for at least the following limitations below (or terms contained therein):

- “zone player”
- “zone scene”
- “serving as a controller for a networked media playback system”
- “controller”
- “networked media playback system”
- “configured to play back media individually”
- “operating in a standalone mode”
- “standalone mode”
- “create a first zone scene” / “create a second zone scene”
- “second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked”
- “based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone scene” / “based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone scene”
- “based on the third request, causing the first zone player to transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players such that the first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player” / “based on the third request, causing the first zone player to transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players such that the first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player.”
- “predefined grouping of zone players”
- “predefined”
- “configured for synchronous playback of media”

- “synchronous playback”
- “first zone scene is invoked”
- “invoked” / “invoke”
- “indication of the first zone scene” / “indication of the second zone scene”
- “causing storage”
- “displaying a representation of the first zone scene and a representation of the second zone scene”
- “transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players”
- “first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player”
- “cease to operate in accordance with the first predefined grouping of zone players”
- “begin to operate in accordance with the second predefined grouping of zone players”
- “first zone player is configured to coordinate with at least the third zone player to output media in synchrony with output of media by at least the third zone player”

Google further discloses that the original disclosure does not include the concept of synchronization among zone players after playback begins. That disclosure does not provide or create a motivation for transitioning or coordination of zone players. Similarly, the original disclosure does not provide that zone players may belong to more than one group or scene at the same time.

2. Indefiniteness Under 35 U.S.C. § 112 ¶ 2

Based on Google’s present understanding of the Asserted Claims and Sonos’s apparent interpretation of these claims as reflected in its Infringement Contentions, the ’966 Asserted Claims may fail to satisfy the requirements of § 112, ¶ 2 because the precise scope of at least the

phrases listed below (or terms contained therein) cannot be determined with reasonable certainty by a POSITA when reading the claims in light of the specification and prosecution history.

- “zone player”
- “zone scene”
- “serving as a controller for a networked media playback system”
- “controller”
- “networked media playback system”
- “configured to play back media individually”
- “operating in a standalone mode”
- “standalone mode”
- “create a first zone scene” / “create a second zone scene”
- “predefined grouping of zone players”
- “predefined”
- “configured for synchronous playback of media”
- “synchronous playback”
- “first zone scene is invoked”
- “invoked” / “invoke”
- “indication of the first zone scene” / “indication of the second zone scene”
- “causing storage”
- “displaying a representation of the first zone scene and a representation of the second zone scene”
- “transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players”
- “first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player”

- “cease to operate in accordance with the first predefined grouping of zone players”
- “begin to operate in accordance with the second predefined grouping of zone players”
- “first zone player is configured to coordinate with at least the third zone player to output media in synchrony with output of media by at least the third zone player”

3. Functional Claiming

§ 112 ¶ 6 limits functional claiming. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349–51 (Fed. Cir. 2015) (en banc) (imposing new standard of indefiniteness to address “proliferation of functional claiming untethered to § 112, para. 6 and free of the strictures set forth in the statute”); *Function Media, LLC v. Google, Inc.*, 708 F.3d 1310, 1319 (Fed. Cir. 2013). It allows the patentee to claim the invention by the functions it performs, but limits the scope of those claims to the specific solutions disclosed in the specification—because in this country, the patentee cannot claim more than what she invented. *MySpace, Inc. v. GraphOn Corp.*, 672 F.3d 1250, 1256 (Fed. Cir. 2012). The following claim limitations are functional and thus are subject to § 112 ¶ 6 requirements and are indefinite for lack of structures in the specification, and are also not enabled because of the lack of structures:

- “cause...”
- “causing...”

VI. '885 PATENT

A. Prior Art References

Google identifies the following prior art now known to Google to anticipate or render obvious the '885 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), (f), and/or (g), and/or § 103, either expressly or inherently as understood by a POSITA (person of ordinary skill in the art).

At this time, Google contends that the following prior art references described below anticipate or render obvious, either alone or in combination, one or more of the Asserted Claims of the '885 Patent. These prior art references also provide a description of the level of skill in the art and provide background information showing the knowledge of a person of skill in the art. Google reserves the right to rely on these references for those purposes. In these invalidity contentions, including the exhibits, any citation to a printed publication or other reference describing a prior art system should also be construed to include a reference to the prior art system itself.

1. Prior Art Publications

The following patents and publications are prior art to the '885 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g). Google incorporates by reference all prior art references cited on the face of the '885 patent, related patents, and all foreign counterparts. Google further incorporates by reference any prior art references identified in the file history of the same. Google reserves the right to rely upon foreign counterparts of the U.S. Patents identified in these invalidity contentions, U.S. counterparts of foreign patents and foreign patent applications identified in these invalidity contentions, U.S. and foreign patents and patent applications corresponding to articles and publications identified in these invalidity contentions, and any systems, products, or prior inventions related to any references identified in these invalidity contentions.

See prior art publications identified in Section IV.A.

Google additionally identifies and relies on patent or publication references that describe or are otherwise related to the prior art systems identified below. Google's investigation into prior art patent and publication references remains ongoing, and Google reserves the right to identify and rely on additional patent or publication references that are identified through further

investigation or discovery. Google reserves the right to supplement as further prior art is identified through investigation or discovery.

2. Prior Art Systems and Products

Google also contends that the asserted claims of the '885 Patent are invalid based on public knowledge and uses and/or offers for sale or sales of products and services that are prior art under 35 U.S.C. § 102(a) and/or (b); and/or prior inventions made in the United States by other inventors who had not abandoned, suppressed, or concealed them under 35 U.S.C. § 102(g), and that anticipate or render obvious under 35 U.S.C. § 103 the asserted claims.

Google incorporates by reference the patent/publications listed in the prior section. To the extent the cited references disclose and describe particular products and/or software programs that were publicly known and/or in public use prior to the priority date of the '885 Patent, in addition to each publication itself serving as a prior art reference under 35 U.S.C. § 102, the various products and/or software programs described in the publications may also serve as grounds for invalidity under 35 U.S.C. § 102 because they were in public use, in which case it would have been obvious to a person of ordinary skill in the art to combine the actual systems in public use with the published documents describing those systems because the documents described systems in public use and refer to them throughout

The following lists prior art products or services that invalidate the '885 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b) and/or (g). Google may rely on all versions of the following prior art systems commercially sold, publicly known or used before the priority date of the '885 Patent, including documents and source code describing the same.

See prior art systems and products identified in Section IV.A.

Google's investigation into prior art systems remains ongoing and Google reserves the right to identify and rely on systems that represent different versions or are otherwise related

variations of the systems identified above. Google may use physical samples, executable software, or source code as evidence of the relevant functionality of these prior art products or services. Google may make available for inspection any physical samples of products, systems, or software listed above, and/or any source code therefor, that it has in its possession or that becomes available in the future during discovery.

3. Obviousness Prior Art

Google identifies the following additional prior art now known to Google that, in combination with the foregoing patents, publications, and systems, render obvious the '885 Asserted Claims under 35 U.S.C. § 103, either expressly or inherently as understood by a POSITA, for at least the reasons stated in Section IX. In addition to the prior art references discussed above, which may be combined, Google discloses Exhibits Rider A – Rider H, which each disclose certain areas of prior art known in the field and which may be combined with the disclosed references to render obvious the Asserted Claims.

See Riders identified in Section IV.A.

Google provides further disclosure regarding obviousness in Section IX, below.

4. Charts Identifying Disclosure in Prior Art Invalidating Asserted Claims

Google submits the following charts identifying specific locations in each alleged item of prior art each limitation of each asserted claim is found are attached as Exhibits 885-1 to 885-9. The contents of Exhibits 885-1 to 885-9, in combination with the foregoing patents, publications, and systems, anticipate and/or render obvious the '885 Patent Asserted Claims under 35 U.S.C. § 102, either expressly or inherently, and under § 103, in each case, as understood by a POSITA.

Exhibit No.	Exhibit (claim chart explaining bases for invalidity of '885 Patent)
885-1	U.S. 7,571,014 (Lambourne)

885-2	CA 2 533 852 (Millington)
885-3	U.S. 8,239,559 (Rajapakse)
885-4	Sonance DAB1 System
885-5	Sonos Forums
885-6	Sonos System
885-7	Bose System
885-8	Crestron Adagio
885-9	Home Director

B. Invalidity Under 35 U.S.C. § 112

Pursuant to the Amended Scheduling Order (Dkt. 48), Google identifies below grounds of invalidity under 35 U.S.C. § 112. The grounds identified below both individually and collectively render the '885 Asserted Claims invalid under the statutory requirements of § 112. By identifying certain claim language below, Google does not imply that such language is entitled to any patentable weight when comparing the claim as a whole to the prior art. Google's identifications are made based on Google's present understanding of the Asserted Claims and Sonos's apparent interpretation of these claims as reflected in its Infringement Contentions, and Google reserves the right to amend these identifications, including in response to claim constructions and claim interpretations that would render claim limitations not enabled, lacking in written description, or indefinite.

1. Lack of Enablement And Written Description Under 35 U.S.C. § 112 ¶ 1

Based on Google's present understanding of the Asserted Claims and Sonos's apparent interpretation of these claims as reflected in its Infringement Contentions, the '885 Asserted Claims may fail to satisfy the requirements of § 112, ¶ 1 because the specification and original

patent application fail to provide an enabling disclosure of and written description support for at least the following limitations below (or terms contained therein):

- “zone player”
- “zone scene”
- “networked media playback system”
- “configured to play back media individually”
- “operating in a standalone mode”
- “standalone mode”
- “predefined grouping of zone players”
- “predefined”
- “configured for synchronous playback of media”
- “synchronous playback”
- “first zone scene is invoked”
- “invoked”
- “causing storage”
- “displaying a representation of the first zone scene and a representation of the second zone scene”
- “transition from operating in the standalone mode to operating in accordance with the given one of the first and second predefined groupings of zone players”
- “first zone player is configured to coordinate with at least one other zone player in the given one of the first and second predefined groupings of zone players over a data network in order to output media in synchrony with output of media by the at least one other zone player in the given one of the first and second predefined groupings of zone players”
- “ceasing to operate in accordance with the first predefined grouping of zone players”
- “beginning to operate in accordance with the second predefined grouping of zone players”

- “first zone player is configured to coordinate with at least the third zone player to output media in synchrony with output of media by at least the third zone player”
- “the first zone player has been added to a first zone scene comprising a first predefined grouping of zone players”

Google further discloses that the original disclosure does not include the concept of synchronization among zone players after playback begins. That disclosure does not provide or create a motivation for transitioning or coordination of zone players. Similarly, the original disclosure does not provide that zone players may belong to more than one group or scene at the same time.

2. Indefiniteness Under 35 U.S.C. § 112 ¶ 2

Based on Google’s present understanding of the Asserted Claims and Sonos’s apparent interpretation of these claims as reflected in its Infringement Contentions, the ’966 Asserted Claims may fail to satisfy the requirements of § 112, ¶ 2 because the precise scope of at least the phrases listed below (or terms contained therein) cannot be determined with reasonable certainty by a POSITA when reading the claims in light of the specification and prosecution history.

- “zone player”
- “zone scene”
- “networked media playback system”
- “configured to play back media individually”
- “operating in a standalone mode”
- “standalone mode”
- “predefined grouping of zone players”
- “predefined”
- “configured for synchronous playback of media”

- “synchronous playback”
- “first zone scene is invoked”
- “invoked”
- “transition from operating in the standalone mode to operating in accordance with the given one of the first and second predefined groupings of zone players”
- “first zone player is configured to coordinate with at least one other zone player in the given one of the first and second predefined groupings of zone players over a data network in order to output media in synchrony with output of media by the at least one other zone player in the given one of the first and second predefined groupings of zone players”
- “ceasing to operate in accordance with the first predefined grouping of zone players”
- “beginning to operate in accordance with the second predefined grouping of zone players”
- “first zone player is configured to coordinate with at least the third zone player to output media in synchrony with output of media by at least the third zone player”
- “the first zone player has been added to a first zone scene comprising a first predefined grouping of zone players”

3. Functional Claiming

§ 112 ¶ 6 limits functional claiming. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349–51 (Fed. Cir. 2015) (en banc) (imposing new standard of indefiniteness to address “proliferation of functional claiming untethered to § 112, para. 6 and free of the strictures set forth in the statute”); *Function Media, LLC v. Google, Inc.*, 708 F.3d 1310, 1319 (Fed. Cir. 2013). It allows the patentee to claim the invention by the functions it performs, but limits the scope of those claims to the specific solutions disclosed in the specification—because in this country, the patentee cannot claim more than what she invented. *MySpace, Inc. v. GraphOn Corp.*, 672 F.3d 1250, 1256 (Fed. Cir. 2012). The following claim limitations are functional and

thus are subject to § 112 ¶ 6 requirements and are indefinite for lack of structures in the specification, and are also not enabled because of the lack of structures:

- “cause...”

VII. '033 PATENT

A. Prior Art References

Google identifies the following prior art now known to Google to anticipate or render obvious the '033 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), (f), and/or (g), and/or § 103, either expressly or inherently as understood by a POSITA (person of ordinary skill in the art).

At this time, Google contends that the following prior art references described below anticipate or render obvious, either alone or in combination, one or more of the Asserted Claims of the '033 Patent. These prior art references also provide a description of the level of skill in the art and provide background information showing the knowledge of a person of skill in the art. Google reserves the right to rely on these references for those purposes. In these invalidity contentions, including the exhibits, any citation to a printed publication or other reference describing a prior art system should also be construed to include a reference to the prior art system itself.

1. Prior Art Publications

The following patents and publications are prior art to the '033 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g). Google incorporates by reference all prior art references cited on the face of the '033 patent, related patents, and all foreign counter parts. Google further incorporates by reference any prior art references identified in the file history of the same. Google reserves the right to rely upon foreign counterparts of the U.S. Patents identified in these invalidity contentions, U.S. counterparts of foreign patents and foreign patent

applications identified in these invalidity contentions, U.S. and foreign patents and patent applications corresponding to articles and publications identified in these invalidity contentions, and any systems, products, or prior inventions related to any references identified in these invalidity contentions.

1. U.S. Patent No. 8,473,993
2. U.S. Patent Publication No. 2008/0195239
3. U.S. Patent Publication No. 2009/0228919
4. U.S. Patent Publication No. 2011/0314388
5. U.S. Patent Publication No. 2011/0131520
6. U.S. Patent No. 9,451,319
7. U.S. Patent No. 8,892,691
8. U.S. Patent Publication No. 2007/0136488
9. U.S. Patent No. 7,571,014
10. U.S. Patent Publication No. US 20050273790
11. U.S. Patent No. 8,724,600
12. U.S. Patent No. 8,799,496
13. U.S. Patent Publication No. 2011/0247035
14. U.S. Patent No. 10,270,612
15. U.S. Patent No. 10,771,274
16. U.S. Patent No. 7,796,190
17. U.S. Patent Publication No. 2008/0133715A1
18. U.S. Patent Publication No. 8,060,225
19. Canadian Patent Publication 2,824,732

20. U.S. Patent No. 7,143,939
21. U.S. Patent Publication No. 2010/0332565
22. U.S. Patent Publication No. 2011/0060994
23. U.S. Patent Publication No. 2006/0265654
24. U.S. Patent Publication No. 2006/0008256
25. U.S. Patent No. 9,846,767
26. PCT Patent Publication No. WO 2011/078879
27. U.S. Patent Publication No. 2011/0131520A1
28. U.S. Patent No. 9,141,616
29. U.S. Patent No. 9,490,998
30. U.S. Patent Publication No. 2007/0136,778
31. U.S. Patent No. 7,792,524
32. U.S. Patent No. 8,724,600
33. European Patent Publication EP 3146731B1
34. U.S. Patent No. 8,972,860
35. U.S. Patent Publication No. 2011/0074794
36. U.S. Patent Publication No. 2007/0271525
37. U.S. Patent Publication No. 2011/014376
38. U.S. Patent Publication No. 2010/0138780
39. U.S. Patent Publication No. 2009/0228897
40. U.S. Patent Publication No. 20080109867
41. U.S. Patent Publication No. 20100082784
42. U.S. Patent Publication No. 20050262254

43. U.S. Patent Publication No. 2006/0203758
44. U.S. Patent No. 9,699,232
45. JP2010501907A
46. EP1548741A1
47. U.S. Patent No. 8,050,652
48. U.S. Patent No. 7,187,947
49. U.S. Patent No. 6,199,076
50. U.S. Patent No. 7,020,704
51. U.S. Patent No. 5,668,788
52. U.S. Patent No. 5,616,876
53. U.S. Patent No. 5,864,868
54. U.S. Patent No. 7,796,190
55. U.S. Patent Publication No. 2007/0136778
56. U.S. Patent Publication No. 2005/0262254
57. U.S. Patent Publication No. 2006/0203758
58. U.S. Patent Publication No. 2018/0332341
59. U.S. Patent Publication No. 2009/0228919A1
60. U.S. Patent Publication No. 2008/0120501
61. U.S. Patent No. 7,720,686
62. U.S. Patent No. 9,386,063
63. U.S. Patent Publication No. 2018/0332341A1
64. U.S. Patent No. 9,690,466
65. U.S. Patent No. 9,788,048

- 66. U.S. Patent No. 9,451,319
- 67. U.S. Patent No. 8,438,131
- 68. U.S. Patent No. 9,547,650
- 69. U.S. Patent No. 7,571,014
- 70. U.S. Patent No. 8,892,691
- 71. U.S. Patent Publication No. 20050273790
- 72. U.S. Patent Publication No. 20070136488
- 73. U.S. Patent No. 8,724,600
- 74. U.S. Patent No. 8,799,496
- 75. U.S. Patent Publication No. 2011/0247035
- 76. AU2012247286B2
- 77. U.S. Patent No. 7,796,190
- 78. U.S. Patent Publication No. 20070136778
- 79. Canadian Patent Publication CA2842342
- 80. EP2751955B1
- 81. U.S. Patent Publication No. 2011/0143769
- 82. U.S. Patent No. 5,616,876
- 83. U.S. Patent No. 5,668,788
- 84. U.S. Patent No. 5,864,868
- 85. U.S. Patent No. 7,308,489
- 86. U.S. Patent No. 7,571,244
- 87. U.S. Patent No. 7,617,278
- 88. U.S. Patent No. 7,668,964

- 89. U.S. Patent No. 7,702,279
- 90. U.S. Patent No. 7,983,614
- 91. U.S. Patent No. 8,041,438
- 92. U.S. Patent No. 8,156,236
- 93. U.S. Patent No. 8,316,154
- 94. U.S. Patent No. 8,401,681
- 95. U.S. Patent No. 8,423,893
- 96. U.S. Patent No. 8,750,677
- 97. U.S. Patent No. 8,805,963
- 98. U.S. Patent No. 8,938,675
- 99. U.S. Patent No. 9,124,607
- 100. U.S. Patent No. 9,154,185
- 101. U.S. Patent No. 9,286,384
- 102. U.S. Patent No. 9,319,815
- 103. U.S. Patent No. 9,460,631
- 104. U.S. Patent No. 9,565,240
- 105. U.S. Patent No. 9,626,363
- 106. U.S. Patent No. 9,819,717
- 107. U.S. Patent No. 10,313,754
- 108. U.S. Patent No. 10,484,806
- 109. U.S. Patent No. 10,587,780
- 110. U.S. Patent No. 10,687,161
- 111. U.S. Patent Publication No. 2002/0173273

- 112. U.S. Patent Publication No. 2002/0174243
- 113. U.S. Patent Publication No. 2003/0126211
- 114. U.S. Patent Publication No. 2004/0193402
- 115. U.S. Patent Publication No. 2007/0136778
- 116. U.S. Patent Publication No. 2009/0323991
- 117. U.S. Patent Publication No. 2010/0162324
- 118. U.S. Patent Publication No. 2016/0066010
- 119. U.S. Patent Publication No. 2017/0013066
- 120. WO9927681
- 121. U.S. Patent Publication No. 2004114579
- 122. U.S. Patent Publication No. 2004117846
- 123. U.S. Patent Publication No. 2005251566
- 124. U.S. Patent Publication No. 2005251807
- 125. U.S. Patent Publication No. 2011295393
- 126. U.S. Patent Publication No. 2002059637
- 127. U.S. Patent Publication No. 2009070411
- 128. EP1427218 A2
- 129. U.S. Patent Publication No. 2004114036
- 130. U.S. Patent Publication No. 2005240494
- 131. U.S. Patent Publication No. 2006002681
- 132. U.S. Patent Publication No. 2007015457
- 133. WO2006068908
- 134. U.S. Patent Publication No. 2006242106

- 135. WO2007081048
- 136. U.S. Patent Publication No. 2008065722
- 137. U.S. Patent Publication No. 2008320543
- 138. WO2009086597
- 139. WO2010065848
- 140. U.S. Patent Publication No. 2011161815
- 141. EP2296365
- 142. EP1809030 A2
- 143. WO2008120111 A1
- 144. TW200943962 A
- 145. U.S. Patent Publication No. 2010110200 A1
- 146. WO2011020065 A1
- 147. WO2010107490 A1
- 148. U.S. Patent Publication No. 2011270742 A1
- 149. U.S. Patent Publication No. 2011/289135
- 150. U.S. Patent Publication No. 2010/312817
- 151. U.S. Patent Publication No. 2011/265157 A1
- 152. U.S. Patent Publication No. 2010/198944 A1
- 153. U.S. Patent Publication No. 2013/091558 A1
- 154. U.S. Patent Publication No. 2013/067303 A1
- 155. U.S. Patent Publication No. 2012/210378 A1
- 156. U.S. Patent Publication No. 2012/079126 A1
- 157. U.S. Patent Publication No. 2014/149544 A1

158. U.S. Patent Publication No. 2017/147600 A1
159. U.S. Patent No. 8,028,323
160. U.S. Patent No. 8,045,952
161. U.S. Patent No. 8,050,652
162. U.S. Patent No. 8,214,873
163. U.S. Patent No. 8,230,099
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165. U.S. Patent No. 7,454,511 to Weast
166. U.S. Patent No. 7,668,939 to Encarnacion et al.
167. U.S. Patent Application Publication No. 2005/0262204 to Szeto et al.
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175. “Mediabolic Incorporates Support for UPnP Technology into the Mediabolic ONE Platform” (Business Wire, Jan. 6, 2003)

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178. U.S. Patent No. 7,187,947 to White et al. (“White”).
179. U.S. Patent No. 6,199,076 to Logan et al. (“Logan”)
180. U.S. Patent No. 7,020,704 to Lipscomb
181. DLNA white paper (2007)
182. Clementine Music Player (Dec. 29, 2011)
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185. Logitech Squeezebox Boom (2008)
186. Logitech Squeezebox Radio (2009)
187. Onkyo AV Receiver TX-SR876 TX-NR906 (2008)
188. UPnPWhitePaper (Sep. 2010)
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191. Sonos ZonePlayer S5 Press Release (Nov. 3, 2009)
192. Sonos ZonePlayer S5 Spec Sheet (2009)
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194. Wireless USB to VGA Kit (GUW2015VKIT) (2009)
195. Panasonic Toughbook 29 Specification Sheet (2006)

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197. J. Moran. Bartels Media MaxiVista Pro PracticallyNetworked.com (Jul. 31, 2008)
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200. P. Gralla. MaxiVista Turns Other PCs Into Multiple Monitors. PCWorld. (Dec. 17, 2009)
201. MaxiVista v1.0.18 User Manual (2004)
202. Maxivista v2 User Manual (2005)
203. R. Broida. Turn an Extra PC Into aSecond Monitor. CBS News (Nov. 19, 2009)
204. Advanced Use of VLC - VideoLAN Wiki (Last modified Dec. 9, 2014)
205. Documentation:Streaming HowTo - VideoLAN Wiki (Last modified No. 29, 2010)
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208. Documentation:Streaming HowTo/Easy Streaming - VideoLAN Wiki (Last modified Feb. 3, 2017)

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210. Documentation:Streaming HowTo/Stream from Encoding Cards and Other Capture Devices - VideoLAN Wiki (Last modified Jan. 1, 2012)
211. Documentation:Streaming HowTo/Streaming, Muxers and Codecs - VideoLAN Wiki (Last modified Feb. 9, 2015)
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225. Bassoli, A., Moore, J., & Agamanolis, S. (2004, July). TunA: Local music sharing with handheld Wi-Fi devices. In Proc of 5th Wireless World Conference 2004.

Google additionally identifies and relies on patent or publication references that describe or are otherwise related to the prior art systems identified below. Google's investigation into prior art patent and publication references remains ongoing, and Google reserves the right to identify and rely on additional patent or publication references that are identified through further investigation or discovery. Google reserves the right to supplement as further prior art is identified through investigation or discovery.

2. Prior Art Systems and Products

Google also contends that the asserted claims of the '033 Patent are invalid based on public knowledge and uses and/or offers for sale or sales of products and services that are prior art under 35 U.S.C. § 102(a) and/or (b); and/or prior inventions made in the United States by other inventors who had not abandoned, suppressed, or concealed them under 35 U.S.C. § 102(g), and that anticipate or render obvious under 35 U.S.C. § 103 the asserted claims.

Google incorporates by reference the patent/publications listed in the prior section. To the extent the cited references disclose and describe particular products and/or software programs that were publicly known and/or in public use prior to the priority date of the '033 Patent, in addition to each publication itself serving as a prior art reference under 35 U.S.C. § 102, the various products and/or software programs described in the publications may also serve as grounds for invalidity under 35 U.S.C. § 102 because they were in public use, in which case it would have been obvious to a person of ordinary skill in the art to combine the actual systems in public use with the published documents describing those systems because the documents described systems in public use and refer to them throughout

The following lists prior art products or services that invalidate the '033 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b) and/or (g). Google may rely on all versions of the following prior art systems commercially sold, publicly known or used before the priority date of the '033 Patent, including documents and source code describing the same.

1. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Tungsten System ("Tungsten") Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
2. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the NexusQ System ("NexusQ") Google reserves the right to rely on other

sources of evidence identified as discovery and Google's investigation progresses.

3. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the YouTube Remote and Leanback System ("YT Remote System") Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses. Apple Airplay/Remote.
4. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Twonky Beam Browser, Twonky applications, Twonky server and WDTV System ("Twonky System") Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
5. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Sonos S5 System and Spotify integration ("Sonos S5") Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
6. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Logitech Squeezebox System ("Squeezebox System") Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
7. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Sony Network Audio Remote System ("Sony System") Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
8. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the mSpot system ("mSpot System") Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
9. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the JBL Speaker and Home Speaker System ("JBL System") Google reserves the right to rely on other sources of evidence identified as discovery and Google's investigation progresses.
10. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to

the Clementine Music Player System (“Clementine System”) Google reserves the right to rely on other sources of evidence identified as discovery and Google’s investigation progresses.

11. Products, components, systems, and methods invented, designed, developed, reduced to practice, and/or in public use or on sale related to the Roku Soundbridge system (“Soundbridge System”) Google reserves the right to rely on other sources of evidence identified as discovery and Google’s investigation progresses.

Google’s investigation into prior art systems remains ongoing and Google reserves the right to identify and rely on systems that represent different versions or are otherwise related variations of the systems identified above. Google may use physical samples, executable software, or source code as evidence of the relevant functionality of these prior art products or services. Google may make available for inspection any physical samples of products, systems, or software listed above, and/or any source code therefor, that it has in its possession or that becomes available in the future during discovery.

3. Obviousness Prior Art

Google identifies the following additional prior art now known to Google that, in combination with the foregoing patents, publications, and systems, render obvious the ’033 Asserted Claims under 35 U.S.C. § 103, either expressly or inherently as understood by a POSITA, for at least the reasons stated in Section IX. In addition to the prior art references discussed above, which may be combined, Google discloses Exhibits Rider I – Rider K, which each disclose certain areas of prior art known in the field and which may be combined with the disclosed references to render obvious the Asserted Claims.

1. Rider I – Playback from the cloud
2. Rider J – Playback transfer
3. Rider K – Playback to multiple devices

Google provides further disclosure regarding obviousness in Section IX, below.

4. Charts Identifying Disclosure in Prior Art Invalidating Asserted Claims

Google submits the following charts identifying specific locations in each alleged item of prior art each limitation of each asserted claim is found are attached as Exhibits 033-1 to 033-12. The contents of Exhibits 033-1 to 033-12, in combination with the foregoing patents, publications, and systems, anticipate and/or render obvious the '033 Patent Asserted Claims under 35 U.S.C. § 102, either expressly or inherently, and under § 103, in each case, as understood by a POSITA.

Exhibit No.	Exhibit (claim chart explaining bases for invalidity of '033 Patent)
033-1	Tungsten System
033-2	Nexus Q System
033-3	YouTube Remote System
033-4	Twonky System
033-5	Airplay System
033-6	Sonos5 System
033-7	Spotify System
033-8	Squeezebox System
033-9	U.S. Patent Pub. No. 2005/251566 (Weel)
033-10	US 8,050,652 (Qureshey)
033-11	U.S. Patent Pub. No. 2008/0120501(Jannick)
033-12	U.S. Patent No. 7,720,686 (Volk)

B. Invalidity Under 35 U.S.C. § 112

Pursuant to the Amended Scheduling Order (Dkt. 48), Google identifies below grounds of invalidity under 35 U.S.C. § 112. The grounds identified below both individually and collectively render the '033 Asserted Claims invalid under the statutory requirements of § 112. By identifying certain claim language below, Google does not imply that such language is entitled to any patentable weight when comparing the claim as a whole to the prior art. Google's identifications are made based on Google's present understanding of the Asserted Claims and Sonos's apparent interpretation of these claims as reflected in its Infringement Contentions, and Google reserves the right to amend these identifications, including in response to claim constructions and claim interpretations that would render claim limitations not enabled, lacking in written description, or indefinite.

1. Lack of Enablement And Written Description Under 35 U.S.C. § 112 ¶ 1

Based on Google's present understanding of the Asserted Claims and Sonos's apparent interpretation of these claims as reflected in its Infringement Contentions, the '033 Asserted Claims may fail to satisfy the requirements of § 112, ¶ 1 because the specification and original patent application fail to provide an enabling disclosure of and written description support for at least the following limitations below (or terms contained therein):

- “first mode ... configured for playback” and “second mode ... configured to control”
- “transport controls to control playback”
- “remote playback queue”
- “remote playback queue provided by a cloud-based computing system associated with a cloud-based media service”

- “operating in a first mode in which the computing device is configured for playback of a remote playback queue provided by a cloud-based computing system associated with a cloud-based media service”
- “while operating in the first mode, displaying a representation of one or more playback devices in a media playback system that are each i) communicatively coupled to the computing device over a data network and ii) available to accept playback responsibility for the remote playback queue”
- “while displaying the representation of the one or more playback devices, receiving user input indicating a selection of at least one given playback device from the one or more playback devices”
- “based on receiving the user input, transmitting an instruction for the at least one given playback device to take over responsibility for playback of the remote playback queue from the computing device, wherein the instruction configures the at least one given playback device to (i) communicate with the cloud-based computing system in order to obtain data identifying a next one or more media items that are in the remote playback queue, (ii) use the obtained data to retrieve at least one media item in the remote playback queue from the cloud-based media service; and (iii) play back the retrieved at least one media item”
- “detecting an indication that playback responsibility for the remote playback queue has been successfully transferred from the computing device to the at least one given playback device”
- “after detecting the indication, transitioning from i) the first mode in which the computing device is configured for playback of the remote playback queue to ii) a second mode in which the computing device is configured to control the at least one given playback device's playback of the remote playback queue and the computing device is no longer configured for playback of the remote playback queue”
- “wherein the instruction comprises an instruction for the cloud-based computing system associated with the media service to provide the data identifying the next one or more media items to the given playback device for use in retrieving the at least one media item from the cloud-based computing system associated with the cloud-based media service”
- “wherein the representation of the one or more playback devices comprises at least one selectable indicator for a group of playback devices that includes the given playback device and one or more other playback devices that are to be configured for synchronous playback of the remote playback queue, and wherein the user input indicating the selection of at least one given playback device from the one or more playback devices

comprises user input indicating a selection of the group of playback devices”

- “operating in the first mode further involves providing a control interface comprising one or more selectable control icons that are configured to control playback of the remote playback queue by the computing device”
- “transitioning from the first mode to the second mode further involves modifying the control interface such that the one or more selectable control icons are configured to control playback of the remote playback queue by the at least one playback device instead of the computing device”
- “after transitioning to the second mode, receiving user input indicating a selection of a given control icon of the one or more selectable control icons, wherein the given control icon corresponds to a given transport control operation”
- “based on receiving the user input indicating the selection of the given control icon, causing the corresponding transport control operation to be executed by the given playback device”
- “wherein the transport control operation comprises one of a play operation, a pause operation, a skip forward operation, or a skip back operation.”
- “wherein the cloud-based computing system associated with the cloud-based media service includes one or more cloud servers”
- “wherein displaying the representation of the one or more playback devices comprises: displaying the representation of the one or more playback devices in response to receiving a selection of a displayed icon indicating that playback responsibility for the remote playback queue can be transferred”
- “before displaying the representation of the one or more playback devices, receiving an indication that the one or more playback devices in the media playback system are available to accept playback responsibility for the remote playback queue”

2. Indefiniteness Under 35 U.S.C. § 112 ¶ 2

Based on Google’s present understanding of the Asserted Claims and Sonos’s apparent interpretation of these claims as reflected in its Infringement Contentions, the ’033 Asserted Claims may fail to satisfy the requirements of § 112, ¶ 2 because the precise scope of at least the

phrases listed below (or terms contained therein) cannot be determined with reasonable certainty by a POSITA when reading the claims in light of the specification and prosecution history.

- “wherein the instruction configures the at least one given playback device to (i) communicate with the cloud-based computing system in order to obtain data identifying a next one or more media items that are in the remote playback queue, (ii) use the obtained data to retrieve at least one media item in the remote playback queue from the cloud-based media service; and (iii) play back the retrieved at least one media item”
- “remote playback queue”
- “remote playback queue provided by a cloud-based computing system associated with a cloud-based media service”
- “operating in a first mode in which the computing device is configured for playback of a remote playback queue provided by a cloud-based computing system associated with a cloud-based media service”
- “while operating in the first mode, displaying a representation of one or more playback devices in a media playback system that are each i) communicatively coupled to the computing device over a data network and ii) available to accept playback responsibility for the remote playback queue”
- “given playback device”
- “while displaying the representation of the one or more playback devices, receiving user input indicating a selection of at least one given playback device from the one or more playback devices”
- “instruction”
- “take over responsibility”
- “wherein the instruction configures the at least one given playback device”
- “based on receiving the user input, transmitting an instruction for the at least one given playback device to take over responsibility for playback of the remote playback queue from the computing device, wherein the instruction configures the at least one given playback device to (i) communicate with the cloud-based computing system in order to obtain data identifying a next one or more media items that are in the remote playback queue, (ii) use the obtained data to retrieve at least one media item in the remote playback queue from the cloud-based media service; and (iii) play back the retrieved at least one media item”

- “detecting an indication that playback responsibility for the remote playback queue has been successfully transferred from the computing device to the at least one given playback device”
- “after detecting the indication, transitioning from i) the first mode in which the computing device is configured for playback of the remote playback queue to ii) a second mode in which the computing device is configured to control the at least one given playback device's playback of the remote playback queue and the computing device is no longer configured for playback of the remote playback queue”
- “configured to control the at least one given playback device's playback of the remote playback queue and the computing device is no longer configured for playback of the remote playback queue”
- “wherein the instruction comprises an instruction for the cloud-based computing system associated with the media service to provide the data identifying the next one or more media items to the given playback device for use in retrieving the at least one media item from the cloud-based computing system associated with the cloud-based media service”
- “wherein the representation of the one or more playback devices comprises at least one selectable indicator for a group of playback devices that includes the given playback device and one or more other playback devices that are to be configured for synchronous playback of the remote playback queue, and wherein the user input indicating the selection of at least one given playback device from the one or more playback devices comprises user input indicating a selection of the group of playback devices”
- “operating in the first mode further involves providing a control interface comprising one or more selectable control icons that are configured to control playback of the remote playback queue by the computing device”
- “transitioning from the first mode to the second mode further involves modifying the control interface such that the one or more selectable control icons are configured to control playback of the remote playback queue by the at least one playback device instead of the computing device”
- “after transitioning to the second mode, receiving user input indicating a selection of a given control icon of the one or more selectable control icons, wherein the given control icon corresponds to a given transport control operation”

- “based on receiving the user input indicating the selection of the given control icon, causing the corresponding transport control operation to be executed by the given playback device”
- “wherein the transport control operation comprises one of a play operation, a pause operation, a skip forward operation, or a skip back operation”
- “wherein the cloud-based computing system associated with the cloud-based media service includes one or more cloud servers”
- “wherein displaying the representation of the one or more playback devices comprises: displaying the representation of the one or more playback devices in response to receiving a selection of a displayed icon indicating that playback responsibility for the remote playback queue can be transferred”
- “before displaying the representation of the one or more playback devices, receiving an indication that the one or more playback devices in the media playback system are available to accept playback responsibility for the remote playback queue”

VIII. '615 PATENT

A. Prior Art References

Google identifies the following prior art now known to Google to anticipate or render obvious the '615 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), (f), and/or (g), and/or § 103, either expressly or inherently as understood by a POSITA (person of ordinary skill in the art).

At this time, Google contends that the following prior art references described below anticipate or render obvious, either alone or in combination, one or more of the Asserted Claims of the '615 Patent. These prior art references also provide a description of the level of skill in the art and provide background information showing the knowledge of a person of skill in the art. Google reserves the right to rely on these references for those purposes. In these invalidity contentions, including the exhibits, any citation to a printed publication or other reference

describing a prior art system should also be construed to include a reference to the prior art system itself.

1. Prior Art Publications

The following patents and publications are prior art to the '615 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), (f) and/or describes systems under (g). Google incorporates by reference all prior art references cited on the face of the '615 patent, related patents, and all foreign counterparts. Google further incorporates by reference any prior art references identified in the file history of the same. Google reserves the right to rely upon foreign counterparts of the U.S. Patents identified in these invalidity contentions, U.S. counterparts of foreign patents and foreign patent applications identified in these invalidity contentions, U.S. and foreign patents and patent applications corresponding to articles and publications identified in these invalidity contentions, and any systems, products, or prior inventions related to any references identified in these invalidity contentions.

See prior art publications identified in Section VII.A.

Google additionally identifies and relies on patent or publication references that describe or are otherwise related to the prior art systems identified below. Google's investigation into prior art patent and publication references remains ongoing, and Google reserves the right to identify and rely on additional patent or publication references that are identified through further investigation or discovery. Google reserves the right to supplement as further prior art is identified through investigation or discovery.

2. Prior Art Systems and Products

Google also contends that the asserted claims of the '615 Patent are invalid based on public knowledge and uses and/or offers for sale or sales of products and services that are prior art under 35 U.S.C. § 102(a) and/or (b); and/or prior inventions made in the United States by

other inventors who had not abandoned, suppressed, or concealed them under 35 U.S.C. § 102(g), and that anticipate or render obvious under 35 U.S.C. § 103 the asserted claims.

Google incorporates by reference the patent/publications listed in the prior section. To the extent the cited references disclose and describe particular products and/or software programs that were publicly known and/or in public use prior to the priority date of the '615 Patent, in addition to each publication itself serving as a prior art reference under 35 U.S.C. § 102, the various products and/or software programs described in the publications may also serve as grounds for invalidity under 35 U.S.C. § 102 because they were in public use, in which case it would have been obvious to a person of ordinary skill in the art to combine the actual systems in public use with the published documents describing those systems because the documents described systems in public use and refer to them throughout

The following lists prior art products or services that invalidate the '615 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b) and/or (g). Google may rely on all versions of the following prior art systems commercially sold, publicly known or used before the priority date of the '615 Patent, including documents and source code describing the same.

See prior art systems and products identified in Section VII.A ('033 section).

Google's investigation into prior art systems remains ongoing and Google reserves the right to identify and rely on systems that represent different versions or are otherwise related variations of the systems identified above. Google may use physical samples, executable software, or source code as evidence of the relevant functionality of these prior art products or services. Google may make available for inspection any physical samples of products, systems, or software listed above, and/or any source code therefor, that it has in its possession or that becomes available in the future during discovery.

3. Obviousness Prior Art

Google identifies the following additional prior art now known to Google that, in combination with the foregoing patents, publications, and systems, render obvious the '615 Asserted Claims under 35 U.S.C. § 103, either expressly or inherently as understood by a POSITA, for at least the reasons stated in Section IX. In addition to the prior art references discussed above, which may be combined, Google discloses Exhibits Rider I – Rider K, which each disclose certain areas of prior art known in the field and which may be combined with the disclosed references to render obvious the Asserted Claims.

See Riders identified in Section IV.A.

Google provides further disclosure regarding obviousness in Section IX, below.

4. Charts Identifying Disclosure in Prior Art Invalidating Asserted Claims

Google submits the following charts identifying specific locations in each alleged item of prior art each limitation of each asserted claim is found are attached as Exhibits 615-1 to 615-12. The contents of Exhibits 615-1 to 615-12, in combination with the foregoing patents, publications, and systems, anticipate and/or render obvious the '615 Patent Asserted Claims under 35 U.S.C. § 102, either expressly or inherently, and under § 103, in each case, as understood by a POSITA.

Exhibit No.	Exhibit (claim chart explaining bases for invalidity of '615 Patent)
615-1	Tungsten System
615-2	Nexus Q System
615-3	YouTube Remote System
615-4	Twonky System

615-5	Airplay System
615-6	Sonos5 System
615-7	Squeezebox System
615-8	Spotify System
615-9	U.S. Patent Pub. No. 2005/251566 (Weel)
615-10	U.S. Patent No. 8,050,652 (Qureshey)
615-11	U.S. Patent Pub. No. 2008/0120501 (Jannick)
615-12	U.S. Patent No. 7,720,686 (Volk)

B. Invalidity Under 35 U.S.C. § 112

Pursuant to the Amended Scheduling Order (Dkt. 48), Google identifies below grounds of invalidity under 35 U.S.C. § 112. The grounds identified below both individually and collectively render the '615 Asserted Claims invalid under the statutory requirements of § 112. By identifying certain claim language below, Google does not imply that such language is entitled to any patentable weight when comparing the claim as a whole to the prior art. Google's identifications are made based on Google's present understanding of the Asserted Claims and Sonos's apparent interpretation of these claims as reflected in its Infringement Contentions, and Google reserves the right to amend these identifications, including in response to claim constructions and claim interpretations that would render claim limitations not enabled, lacking in written description, or indefinite.

1. Lack of Enablement And Written Description Under 35 U.S.C. § 112 ¶ 1

Based on Google's present understanding of the Asserted Claims and Sonos's apparent interpretation of these claims as reflected in its Infringement Contentions, the '615 Asserted Claims may fail to satisfy the requirements of § 112, ¶ 1 because the specification and original

patent application fail to provide an enabling disclosure of and written description support for at least the following limitations below (or terms contained therein):

- “causing one or more first cloud servers to add multimedia content to a local playback queue on the particular playback device”
- “local playback queue”
- “one or more first cloud servers adding, to the local playback queue, one or more resource locators corresponding to respective locations of the multimedia content at one or more second cloud servers of a streaming content service”
- “causing, via a control device, a graphical interface to display a control interface including one or more transport controls to control playback by the control device; / causing a graphical interface to display a control interface including one or more transport controls to control playback by the control device / causing the graphical interface to display a control interface including one or more transport controls to control playback by the control device”
- “after connecting to a local area network via a network interface, identifying, via the control device, playback devices connected to the local area network; / after connecting to a local area network via a network interface, identifying playback devices connected to the local area network”
- “causing, via the control device, the graphical interface to display a selectable option for transferring playback from the control device (Claim 1) / causing the graphical interface to display a selectable option for transferring playback from the control device”
- “detecting, via the control device, a set of inputs to transfer playback from the control device to a particular playback device, wherein the set of inputs comprises: (i) a selection of the selectable option for transferring playback from the control device and (ii) a selection of the particular playback device from the identified playback devices connected to the local area network; / detecting a set of inputs to transfer playback from the control device to a particular playback device, wherein the set of inputs comprises: (i) a selection of the selectable option for transferring playback from the control device and (ii) a selection of the particular playback device from the identified playback devices connected to the local area network”
- “after detecting the set of inputs to transfer playback from the control device to the particular playback device, causing playback to be

transferred from the control device to the particular playback device, wherein transferring playback from the control device to the particular playback device comprises”

- “causing one or more first cloud servers to add multimedia content to a local playback queue on the particular playback device, wherein adding the multimedia content to the local playback queue comprises the one or more first cloud servers adding, to the local playback queue, one or more resource locators corresponding to respective locations of the multimedia content at one or more second cloud servers of a streaming content service”
- “causing playback at the control device to be stopped”
- “modifying the one or more transport controls of the control interface to control playback by the playback device”
- “causing the particular playback device to play back the multimedia content, wherein the particular playback device playing back the multimedia content comprises the particular playback device retrieving the multimedia content from one or more second cloud servers of a streaming content service and playing back the retrieved multimedia content”
- “wherein detecting the set of inputs to transfer playback from the control device to the particular playback device comprises detecting a set of inputs to transfer playback from the control device to a particular zone of a media playback system that includes the particular playback device as a first channel of a stereo pair and an additional playback device as a second channel of the stereo pair, wherein modifying the one or more transport controls of the control interface to control playback by the particular playback device comprises causing the one or more transport controls of the control interface to control playback by the particular playback device and the additional playback device, and wherein the particular playback device playing back the retrieved multimedia content comprises the particular playback device and the additional playback device playing back the multimedia content as the stereo pair”
- “herein detecting the set of inputs to transfer playback from the control device to the particular playback device comprises detecting a set of inputs to transfer playback from the control device to a particular zone group of a media particular playback system that includes a first zone and a second zone, wherein the first zone includes the particular playback device and the second zone includes at least one additional playback device, wherein modifying the one or more transport controls of the control interface to control playback by the playback device comprises causing the one or more transport controls of the control interface to control playback by the particular playback device and the at least one additional playback device

in synchrony, and wherein the particular playback device playing back the retrieved multimedia content comprises the particular playback device and the at least one additional playback device playing back the multimedia content in synchrony”

- “wherein transferring playback from the playback device back to the control device comprises: causing playback at the playback device to be stopped; and modifying the one or more transport controls of the control interface to control playback by the control device”
- “causing the graphical interface to display a control interface that includes the one or more transport controls in a particular arrangement on the graphical interface, and wherein modifying the one or more transport controls of the control interface to control playback by the particular playback device comprises causing the graphical interface to display the one or more transport controls to control playback by the particular playback device in the particular arrangement”
- “causing an identifier of the multimedia content to be added to the local playback queue, wherein the identifier indicates a particular source of the multimedia content at the one or more second cloud servers of the streaming content service, wherein the particular playback device receives the multimedia content from the particular source at the one or more second cloud servers of the streaming content service”
- “wherein causing one or more first cloud servers to add the multimedia content to the local playback queue on the particular playback device comprises sending a message to the streaming content service that causes the one or more first cloud servers to add the multimedia content to the local playback queue on the particular playback device”
- “wherein detecting the set of inputs comprises detecting an input that causes playback at the control device to be stopped”
- “wherein detecting the set of inputs comprises detecting selection of a button on the control interface”

2. Indefiniteness Under 35 U.S.C. § 112 ¶ 2

Based on Google’s present understanding of the Asserted Claims and Sonos’s apparent interpretation of these claims as reflected in its Infringement Contentions, the ’615 Asserted Claims may fail to satisfy the requirements of § 112, ¶ 2 because the precise scope of at least the

phrases listed below (or terms contained therein) cannot be determined with reasonable certainty by a POSITA when reading the claims in light of the specification and prosecution history.

- “causing, via a control device, a graphical interface to display a control interface including one or more transport controls to control playback by the control device” / “causing a graphical interface to display a control interface including one or more transport controls to control playback by the control device” / “causing the graphical interface to display a control interface including one or more transport controls to control playback by the control device”
- “local playback queue”
- “after connecting to a local area network via a network interface, identifying, via the control device, playback devices connected to the local area network” / “after connecting to a local area network via a network interface, identifying playback devices connected to the local area network”
- “causing, via the control device, the graphical interface to display a selectable option for transferring playback from the control device” / “causing the graphical interface to display a selectable option for transferring playback from the control device”
- “detecting, via the control device, a set of inputs to transfer playback from the control device to a particular playback device, wherein the set of inputs comprises: (i) a selection of the selectable option for transferring playback from the control device and (ii) a selection of the particular playback device from the identified playback devices connected to the local area network” / “detecting a set of inputs to transfer playback from the control device to a particular playback device, wherein the set of inputs comprises: (i) a selection of the selectable option for transferring playback from the control device and (ii) a selection of the particular playback device from the identified playback devices connected to the local area network”
- “after detecting the set of inputs to transfer playback from the control device to the particular playback device, causing playback to be transferred from the control device to the particular playback device, wherein transferring playback from the control device to the particular playback device comprises”
- “causing one or more first cloud servers to add multimedia content to a local playback queue on the particular playback device, wherein adding the multimedia content to the local playback queue comprises the one or more first cloud servers adding, to the local playback queue, one or more

resource locators corresponding to respective locations of the multimedia content at one or more second cloud servers of a streaming content service”

- “causing playback at the control device to be stopped”
- “modifying the one or more transport controls of the control interface to control playback by the playback device”
- “causing the particular playback device to play back the multimedia content, wherein the particular playback device playing back the multimedia content comprises the particular playback device retrieving the multimedia content from one or more second cloud servers of a streaming content service and playing back the retrieved multimedia content”
- “wherein detecting the set of inputs to transfer playback from the control device to the particular playback device comprises detecting a set of inputs to transfer playback from the control device to a particular zone of a media playback system that includes the particular playback device as a first channel of a stereo pair and an additional playback device as a second channel of the stereo pair, wherein modifying the one or more transport controls of the control interface to control playback by the particular playback device comprises causing the one or more transport controls of the control interface to control playback by the particular playback device and the additional playback device, and wherein the particular playback device playing back the retrieved multimedia content comprises the particular playback device and the additional playback device playing back the multimedia content as the stereo pair”
- “herein detecting the set of inputs to transfer playback from the control device to the particular playback device comprises detecting a set of inputs to transfer playback from the control device to a particular zone group of a media particular playback system that includes a first zone and a second zone, wherein the first zone includes the particular playback device and the second zone includes at least one additional playback device, wherein modifying the one or more transport controls of the control interface to control playback by the playback device comprises causing the one or more transport controls of the control interface to control playback by the particular playback device and the at least one additional playback device in synchrony, and wherein the particular playback device playing back the retrieved multimedia content comprises the particular playback device and the at least one additional playback device playing back the multimedia content in synchrony”
- “wherein transferring playback from the playback device back to the control device comprises: causing playback at the playback device to be

stopped; and modifying the one or more transport controls of the control interface to control playback by the control device”

- “causing the graphical interface to display a control interface that includes the one or more transport controls in a particular arrangement on the graphical interface, and wherein modifying the one or more transport controls of the control interface to control playback by the particular playback device comprises causing the graphical interface to display the one or more transport controls to control playback by the particular playback device in the particular arrangement”
- “causing an identifier of the multimedia content to be added to the local playback queue, wherein the identifier indicates a particular source of the multimedia content at the one or more second cloud servers of the streaming content service, wherein the particular playback device receives the multimedia content from the particular source at the one or more second cloud servers of the streaming content service”
- “wherein causing one or more first cloud servers to add the multimedia content to the local playback queue on the particular playback device comprises sending a message to the streaming content service that causes the one or more first cloud servers to add the multimedia content to the local playback queue on the particular playback device”
- “wherein detecting the set of inputs comprises detecting an input that causes playback at the control device to be stopped”
- “wherein detecting the set of inputs comprises detecting selection of a button on the control interface”

IX. OBVIOUSNESS

No showing of a specific motivation to combine prior art is required to combine the references disclosed in Sections IV through VIII and in the attached charts, as each combination of art would have yielded expected results and at most would simply represent a known alternative to one of skill in the art. *See Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1058 (Fed. Cir. 2016); *Intercontinental Great Brands LLC v. Kellogg N. Am. Co.*, 869 F.3d 1336, 1344 (Fed. Cir. 2017); *KSR Int’l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1739-40 (2007) (rejecting the Federal Circuit’s “rigid” application of the teaching, suggestion, or motivation to combine test, and instead applying an “expansive and flexible” approach). Indeed, the Supreme Court held

that a POSITA is “a person of ordinary creativity, not an automaton” and “in many cases a person of ordinary skill in the art will be able to fit the teachings of multiple patents together like pieces of a puzzle.” *KSR*, 127 S.Ct. at 1742. Nevertheless, in addition to the information contained in the section immediately above and elsewhere in these contentions, Google hereby identifies motivations and reasons to combine.

One or more combinations of the prior art references identified above would have been obvious because these references would have been combined using: known methods to yield predictable results; known techniques in the same way; a simple substitution of one known, equivalent element for another to obtain predictable results; and/or a teaching, suggestion, or motivation in the prior art generally. *See Apple*, 839 F.3d at 1077; *Intercontinental Great Brands*, 869 F.3d at 1344. In addition, it would have been obvious to try combining the prior art references identified above because there were only a finite number of predictable solutions and/or because known work in one field of endeavor prompted variations based on predictable design incentives and/or market forces either in the same field or a different one. *See ACCO Brands Corp. v. Fellowes, Inc.*, 813 F.3d 1361, 1367 (Fed. Cir. 2016); *Sanofi-Aventis Deutschland GmbH v. Glenmark Pharms. Inc., USA*, 748 F.3d 1354, 1360 (Fed. Cir. 2014); *Bayer Pharma AG v. Watson Labs., Inc.*, 874 F.3d 1316, 1329 (Fed. Cir. 2017); *KSR*, 127 S. Ct. at 1742. Further, the combinations of the prior art references identified above and in the claim charts would have been obvious because the combinations represent known potential options with a reasonable expectation of success. *See InTouch Techs., Inc. v. VGo Comms., Inc.*, 751 F.3d 1327, 1347 (Fed. Cir. 2014).

Additional evidence that there would have been a motivation to combine the prior art references identified above includes the interrelated teachings of multiple prior art references; the

effects of demands known to the design community or present in the marketplace; the existence of a known problem for which there was an obvious solution encompassed by the Asserted Claims; the existence of a known need or problem in the field of the endeavor at the time of the alleged inventions; and the background knowledge that would have been possessed by a POSITA. *See Arctic Cat Inc. v. Bombardier Recreational Prod. Inc.*, 876 F.3d 1350, 1359 (Fed. Cir. 2017); *Intercontinental Great Brands LLC v. Kellogg N. Am. Co.*, 869 F.3d 1336, 1344 (Fed. Cir. 2017); *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1003 (Fed. Cir. 2016); *Norgren Inc. v. Int'l Trade Comm'n*, 699 F.3d 1317, 1322-23 (Fed. Cir. 2012).

The motivation to combine the teachings of the prior art references disclosed herein is also found in the references themselves and in: (1) the nature of the problem being solved; (2) the express, implied and inherent teachings of the prior art; (3) the knowledge of POSITAs; (4) the predictable results obtained in combining the different elements of the prior art; (5) the predictable results obtained in simple substitution of one known element for another; (6) the use of a known technique to improve similar devices, methods, or products in the same way; (7) the predictable results obtained in applying a known technique to a known device, method, or product ready for improvement; (8) the finite number of identified predictable solutions that had a reasonable expectation of success; and (9) known work in various technological fields that could be applied to the same or different technological fields based on design incentives or other market forces. See above legal background regarding obviousness combinations and M.P.E.P. § 2143.

A. '206 Patent, '966 Patent, and '85 Patent

1. General state of the art.

The references cited herein set forth the state of the art with respect to the claimed invention and the accused speaker grouping at the time, with which a person having ordinary skill in the art would have been familiar.

The specification of the '206, '966, and '885 patents admits that manual speaker grouping, controlled remotely, available and ubiquitous at the time of the invention. The state of the art included multi-zone audio systems that could play different sets of media across zones or groups of speakers:

Currently, one of the systems that can meet part of such demand is a conventional multi-zone audio system that usually includes a number of audio players. Each of the audio players has its own amplifier(s) and a set of speakers and typically installed in one place (e.g., a room). In order to play an audio source at one location, the audio source must be provided locally or from a centralized location. When the audio source is provided locally, the multi-zone audio system functions as a collection of many stereo systems, making source sharing difficult. When the audio source is provided centrally, the centralized location may include a juke box, many compact discs, an AM or FM radio, tapes, or others. To send an audio source to an audio player demanding such source, a cross-bar type of device is used to prevent the audio source from going to other audio players that may be playing other audio sources.

In order to achieve playing different audio sources in different audio players, the traditional multi-zone audio system is generally either hard-wired or controlled by a pre-configured and pre-programmed controller. While the pre-programmed configuration may be satisfactory in one situation, it may not be suitable for another situation. For example, a person would like to listen to broadcast news from his/her favorite radio station in a bedroom, a bathroom and a den while preparing to go to work in the morning. The same person may wish to listen in the den and the living room to music from a compact disc in the evening. In order to satisfy such requirements, two groups of audio players must be established. In the morning, the audio players in the bedroom, the bathroom and the den need to be grouped for the broadcast news. In the evening, the audio players in the den and the living room are grouped for the music. Over the weekend, the audio players in the den, the living room, and a kitchen are grouped for party music. Because the morning group, the evening group and the weekend group contain the den, it can be difficult for the traditional system to accommodate the requirement of

dynamically managing the ad hoc creation and deletion of groups. '206 Patent at 1:40-2:11.

The patent specification asserts that what was missing from the prior art was “dynamic control” for audio players in a group because audio players allegedly needed to be “adjusted one at a time” and “in an inconvenient and non-homogenous audio environment.”

There is a need for dynamic control of the audio players as a group. With a minimum manipulation, the audio players may be readily grouped. In a traditional multi-zone audio system, the audio players have to be adjusted one at a time, resulting in an inconvenient and non-homogenous audio environment. Further, there is a need to individually or systematically adjust the audio volume of the audio players.
2:11-17.

There was no need for dynamic control of audio players as a group because this too was well known in the art. For example, as described in this document and the attached exhibits, many prior art references and products described dynamically controlled zones of audio players, allowing group adjustments. The DAB1 system, for example, used an infrared remote control to select zones, select sources, and control zone volume. *E.g.*, DAB1 Distributed Audio System Instruction Manual at 25. The Creston system similarly allowed predefined groups to be created, which could then be selected for easy playback of multiple speakers. *See* Creston Claim Charts.

2. Obviousness combinations.

Google discloses specific obviousness combinations in the attached claim charts. Motivations to combine the above items of prior art are present in the references themselves, the common knowledge of a POSITA, the prior art as a whole, and/or the nature of the problems allegedly addressed by the '206, '966, '885 Patents. Combining the references identified in the accompanying claim charts would have been obvious, as the references identify and address the same technical issues and suggest very similar solutions to those issues. Google reserves the

right to amend or supplement these invalidity contentions to identify additional reasons that combining the references would be obvious to a POSITA.

In addition to the specific combinations of prior art and the specific combinations of groups of prior art disclosed, Google reserves the right to rely on any other combination of any prior art references disclosed herein. Google further reserves the right to rely upon combinations disclosed within the prosecution history of the references cited herein.

a. Speaker grouping

To the extent one or more references do not explicitly or inherently disclose speaker grouping, the references in Rider A each disclose this feature based on Google's present understanding of the Asserted Claims and Sonos's apparent construction of the Claims, as set forth in Sonos's Infringement Contentions.

The references cited in Rider A each would have been obvious to combine with the cited references because they are all directed to improving home audio or speaker systems. Further, the references are directed to enhancing the control of such systems, simplifying the user experience, reducing implementation time, augmenting the available speaker configurations, and improving the capabilities of individual speakers. Support for these motivations are provided in the Rider cited above.

For example, adding speaker grouping to an ungrouped set of speakers would combine known elements methods (combining separate elements for efficiency and ease of use) with speakers to yield the predictable result of increasing the efficiency and ease of use of a speaker system. As discussed herein and the references cited herein, this was well known in the art prior to the time of invention. As another example, the prior art references cited herein provide a teach, suggestion, or motivation to modify ungrouped speaker systems by adding grouping functionality. The '206 and '966 patents admit that these concepts were well known in the art.

b. Storing group information at a speaker

To the extent one or more references do not explicitly or inherently disclose storing group information at a speaker, the references in Rider B each disclose this feature based on Google's present understanding of the Asserted Claims and Sonos's apparent construction of the Claims, as set forth in Sonos's Infringement Contentions.

For example, it was well known to store system information at devices remote from the controller as shown by the prior art references cited herein. Adding this concept to a speaker system would have yielded the predictable result of storing group information at a speaker device. These were known methods that improved other home devices and appliances in the same way. It would also have been obvious to try to store grouping information at the speaker device, given that the information can only be stored in two locations—the controller or the speaker device. The prior art references cited herein disclose doing this, and therefore there would have been a reasonable expectation of success in doing so. The prior art references cited herein also teach, suggest, or motivate a person of skill in the art to store group information at a speaker because this is explicitly taught.

c. Remote control of speaker group

To the extent one or more references do not explicitly or inherently disclose remote control of a speaker group, the references in Rider C each disclose this feature based on Google's present understanding of the Asserted Claims and Sonos's apparent construction of the Claims, as set forth in Sonos's Infringement Contentions.

For example, remote control of a speaker group is merely combining known prior art elements (remote controls and speakers) to yield the predictable result of a remote controlled speaker system. This is also just the simple substitution of moving control of a speaker group from the group itself to a remote control, which was a well-known element in the art. Using

remote control of a speaker group would also apply a known technique (remote controls) to a known device (speakers) ready for improvement to yield predictable results. It would also have been obvious to try remote control of a speaker group because there are only two locations from which the speakers can be controlled, on the speaker or remotely from the speaker. The prior art references cited herein also provide a teaching, suggestion, or motivation to utilize remote controls with speaker systems.

d. Dynamic modification of speaker groups

To the extent one or more references do not explicitly or inherently disclose dynamically modifying a speaker group, the references in Rider D each disclose this feature based on Google's present understanding of the Asserted Claims and Sonos's apparent construction of the Claims, as set forth in Sonos's Infringement Contentions.

For example, it was known at the time of the invention to utilize a computerized system to dynamically control a remote unit. Further, a predictable result in the wired and wireless context is that less manual labor may be needed to wire or unwire devices. It would have been obvious to apply this teaching to speaker systems, as the prior art references cited herein show. Simply substituting wireless controls for dynamic modification of speaker groups would also have yielded those predictable results. It would have been obvious to try wireless or dynamic control of a speaker group because there are two options for speaker control—wired or wireless. And the speakers may be set in static and unchanging groups or may be dynamically changed, which presents a limited set of options and based on the prior art references disclosed herein, it would have been obvious to utilize dynamic controls with its obvious benefits. Similar adoption in other contexts where wired and static control was substituted with wireless and dynamic control abound. The prior art references cited herein also provide a teaching, suggestion, or motivation to utilize dynamic control of speaker grouping.

e. Creating or using “scene” information

To the extent one or more references do not explicitly or inherently disclose creating or using “scene” information, the references in Rider E each disclose this feature based on Google’s present understanding of the Asserted Claims and Sonos’s apparent construction of the Claims, as set forth in Sonos’s Infringement Contentions.

For example, scene information was well known in the art and would have been obvious to combine with speaker systems, as shown by the prior art references cited herein. The prior art references cited herein also provide a teaching, suggestion, or motivation to utilize scene information.

f. Graphical user interface

To the extent one or more references do not explicitly or inherently disclose using a graphical user interface, the references in Rider F each disclose this feature based on Google’s present understanding of the Asserted Claims and Sonos’s apparent construction of the Claims, as set forth in Sonos’s Infringement Contentions.

For example, graphical user interfaces were well known to use on wireless controllers as the time of the invention, and utilizing a graphical user interface in the context of speaker grouping would have yielded predictable results. The graphical user interface would have been a simple substitution for conventional buttons and knobs, and this substitution was made in many related contexts prior to the invention. It would also have been obvious to try to use a graphical user interface because the controller could use conventional buttons or knobs or a screen-based interface, which was one of a finite number of options with predictable solutions and a reasonable expectation of success. The prior art references cited herein also provide a teaching, suggestion, or motivation to utilize a graphical user interface.

g. Naming a group

To the extent one or more references do not explicitly or inherently disclose naming a group, the references in Rider G each disclose this feature based on Google's present understanding of the Asserted Claims and Sonos's apparent construction of the Claims, as set forth in Sonos's Infringement Contentions.

For example, identifying a group with a name combined known prior art elements according to known methods that yielded predictable results, namely, providing more descriptive information regarding the speaker groups. Naming groups was well known in related technological fields and had been applied with predictable results. The prior art references cited herein also provide a teaching, suggestion, or motivation to utilize naming of speaker groups.

h. Overlapping or non-overlapping groups

To the extent one or more references do not explicitly or inherently disclose either overlapping or non-overlapping speaker groups, the references in Rider H each disclose this feature based on Google's present understanding of the Asserted Claims and Sonos's apparent construction of the Claims, as set forth in Sonos's Infringement Contentions.

For example, utilizing overlapping or non-overlapping speaker groups would result from combining prior art elements according to known methods yielding only predictable results. It was well known in the art to group devices together and that those groups may be overlapping or non-overlapping. Applying these teachings to speaker groups would have been obvious. It would also have been obvious to try either overlapping or non-overlapping groups, given that these are the only two options for grouping speakers together, and therefore would have been a choice between a finite number of identified predictable solutions with a reasonable expectation of success. The prior art references cited herein also provide a teaching, suggestion, or motivation to utilize overlapping or non-overlapping speaker groups.

i. Sonos-Related Prior Art

To the extent one or more of the Sonos related prior art identified in Section IV-VI and in the attached Exhibits (e.g., Lambourne, Millington, Sonos System, and Sonos Forums) do not explicitly or inherently disclose the limitations of the Asserted Claims, it would have been obvious to combine any one of the Sonos related prior art with one another to arrive at the limitation because they all describe related and interoperable systems. Indeed, a POSITA would have found it obvious to combine these references with one another because each of the references describes features and functionalities that are directed at the same or similar Sonos prior art devices. For example, the Sonos System was developed by Sonos, and Lambourne and Millington are patent publications that describe Sonos's products and that are both assigned to Sonos. Lambourne and Millington also name on their face employees of Sonos (including a common inventor, Nicholas Millington). A POSITA would have thus been motivated to combine these teachings with one another because each of these references describes improvements for the same or similar Sonos products. The Sonos Forums is also directed at improvements specifically for the Sonos prior art products, such as those disclosed in Sonos System, Lambourne, and Millington, such that a POSITA would have been motivated to combine the teaching of the Sonos Forums with these other Sonos references.

B. '033 Patent and '615 Patents

1. General state of the art.

The references cited herein set forth the state of the art with respect to the claimed invention and the accused control and playback devices at the time, with which a person having ordinary skill in the art would have been familiar.

The specification of the '033 and '615 patents admits that technology used to access and playback online audio and video content was available and ubiquitous at the time of the

invention. The state of the art included wired or wireless networks connecting multiple playback devices within a home, to share multimedia content among devices or groups of devices:

“Technological advancements have increased the accessibility of music content, as well as other types of media, such as television content, movies, and interactive content. For example, a user can access audio, video, or both audio and video content over the Internet through an online store, an Internet radio station, an online music service, an online movie service, and the like, in addition to the more traditional avenues of accessing audio and video content. Demand for such audio and video content continues to surge. Given the high demand, technology used to access and play such content has likewise improved.” ’033 Patent at 1:29-39

Wired or wireless networks can be used to connect one or more multimedia playback devices for a home or other location playback network (e.g., a home music system). Certain examples provide automatic configuration of parameters of a playback device to be coupled to a network with reduced or minimum human intervention. For example, a wired and/or wireless ad-hoc network is established to facilitate communications among a group of devices. Music and/or other multimedia content can be shared among devices and/or groups of devices (also referred to herein as zones) associated with a playback network. ’033 Patent at 2:9-19, Fig. 1.

There was no need for media access from the cloud or media transfer between devices because this too was well known in the art. For example, as described in this document and the attached exhibits, many prior art references and products described both media transfer across devices, and media access from the cloud.

2. Obviousness combinations.

Google discloses specific obviousness combinations in the attached claim charts. Motivations to combine the above items of prior art are present in the references themselves, the common knowledge of a POSITA, the prior art as a whole, and/or the nature of the problems allegedly addressed by the ’033 and ’615 Patents. Combining the references identified in the accompanying claim charts would have been obvious, as the references identify and address the same technical issues and suggest very similar solutions to those issues. Google reserves the

right to amend or supplement these invalidity contentions to identify additional reasons that combining the references would be obvious to a POSITA.

In addition to the specific combinations of prior art and the specific combinations of groups of prior art disclosed, Google reserves the right to rely on any other combination of any prior art references disclosed herein. Google further reserves the right to rely upon combinations disclosed within the prosecution history of the references cited herein.

a. Playback to multiple devices (stereo pair, synchrony, group)

To the extent one or more references do not explicitly or inherently disclose playback to multiple devices, including a stereo pair, multiple playback devices in synchrony, or a device group, the references in Rider I each disclose this feature based on Google's present understanding of the Asserted Claims and Sonos's apparent construction of the Claims, as set forth in Sonos's Infringement Contentions.

The references cited in Rider I each would have been obvious to combine with the cited references because they are all directed to providing music for playback. Further, the references are directed to enhancing playback by providing music for playback on multiple grouped devices, to playback music in synchrony and/or stereo. Support for these motivations are provided in the Rider cited above.

For example, U.S. Patent No. 8,724,600 to Ramsay et al. ("Ramsay") discloses systems and methods for providing media playback in a networked environment, and the Sonos S5 player (or Sonos Play:5) is an example of a multi-room media playback system, in which a user can play the same media on multiple speakers in synchrony. Ramsay discloses the ability for a user to playback media on a speaker pair, as a stereo. Ramsay 6:14-43. Moreover, Ramsay, Sonos S5, and others such as Canadian Patent Publication CA2533852 provide a teaching, suggestion, or

motivation to utilize the capability to access media from the cloud to stream media anywhere through the home.

b. Playback transfer (selectable option, display representation)

To the extent one or more references do not explicitly or inherently disclose a selectable option for transferring playback, a display of the available playback devices, or an instruction to transfer playback, the references in Rider J each disclose this feature based on Google's present understanding of the Asserted Claims and Sonos's apparent construction of the Claims, as set forth in Sonos's Infringement Contentions.

The references cited in Rider J each would have been obvious to combine with the cited references because they are all directed to providing music for playback via one or more devices on a playback data network. Further, the references are directed to simplifying the user experience by providing a selectable option to select a playback device, and displaying representations of available playback devices. Support for these motivations are provided in the Rider cited above.

For example, U.S. Patent Publication No. 2006/0265654 to Nakamura et al. discloses "throw" and "catch" operations to throw or send multimedia content from one display to a different display, which can catch or receive it. Nakamura ¶¶46-8. Similarly, Apple's AirPlay system, in combination with the iW1 Home speaker discloses transferring playback from a first device (e.g. phone) to a second device (e.g. iW1 home), and displays a selectable AirPlay icon, which when selected displays to the user devices available for playback. Because it was well-known in the art to transfer playback from one device to another, it was also well-known in the art to provide a means for a user to choose to transfer playback to one of any available devices. Applying these teachings to existing wired or wireless networks connecting multiple playback devices within a home would have been obvious. Indeed, graphical user interfaces were well

known to use on wireless controllers as the time of the invention, and utilizing a graphical user interface in the context of networked playback systems to display multiple speaker options would have been obvious.

c. Playback from the Cloud

To the extent one or more references do not explicitly or inherently disclose playback from the cloud, including a remote playback queue, a playback device obtaining music from the cloud, cloud servers adding URLs to a local playback queue, and communications between a playback device and the cloud, the references in Rider K each disclose this feature based on Google's present understanding of the Asserted Claims and Sonos's apparent construction of the Claims, as set forth in Sonos's Infringement Contentions.

The references cited in Rider K each would have been obvious to combine with the cited references because they are all directed to providing music for playback via one or more devices on a playback data network. Further, the references are directed to specific implementations regarding playback from the cloud, including communication with cloud servers to receive media on the playback device, and adding media from the cloud to playback devices. Support for these motivations are provided in the Rider cited above.

For example, U.S. Publication No. 2009/0228919 to Zott et al relates to TV server computers used by consumers in their home for viewing videos and other media that are either streamed from the Web or previously stored, and the creation, storage, manipulation and access of media playlists used in conjunction with TV server computers, and in particular, methods for remote controlling TV server computers according to media links contained in playlists. Zott, Abstract. Zott recognizes that playlists may be stored on a server, and access directly from said server. Zott [0022]-[0023]. Additional references such as U.S. Publication No. 8,473,993 to Athias and U.S. Publication No. 2011/0314388 to Wheatley et al. provide a teaching, suggestion,

or motivation to store playlists in the cloud, to let multiple users edit and access a collaborative playlist. Similarly, various cloud services (e.g., Spotify), were well-known by the time of the alleged invention, and permitted a large number of consumers and their playback devices to obtain music from the cloud, including by adding URL to a local playback queue. *See, e.g.,* Spotify System. A POSITA would have found it desirable to incorporate popular cloud base services like Spotify into their devices.

X. DOCUMENT PRODUCTION ACCOMPANYING PRELIMINARY INVALIDITY CONTENTIONS

Google is producing and/or making available for inspection documents and code required under the Amended Scheduling Order (Dkt. 48) under a separate letter.

Google reserves the right to produce and rely on additional documents relating to their products in view of, for example, additional information revealed during discovery regarding Sonos's allegations and/or amendments to Sonos's Infringement Contentions.

XI. OTHER RESERVATIONS AND EXPLANATIONS

These Preliminary Invalidity Contentions and accompanying document productions are preliminary and subject to further revision as follows. Nothing in these contentions constitutes an admission concerning the priority date, conception date, or date of reduction to practice of the Asserted Claims. Google reserves the right to modify or supplement these Preliminary Invalidity Contentions, including in response to any positions taken or information disclosed regarding the priority date, conception date, or date of reduction to practice of the Asserted Claims.

The Court has not yet construed any of the terms in the Asserted Patents. Accordingly, Google's Preliminary Invalidity Contentions are based in part on Google's present understanding of the Asserted Claims and Sonos's apparent interpretation of these claims as reflected in its Infringement Contentions. By including prior art that anticipates or renders obvious claims

based on Sonos's apparent claim interpretations, Google is not agreeing that Sonos's claim interpretations are correct.

Google reserves the right to revise their ultimate contentions concerning the invalidity of asserted the Asserted Claims, which may change depending on discovery taken in the case, the Court's construction of the Asserted Claims, any findings as to the priority date of the Asserted Claims, and/or positions that Sonos or expert witness(es) may take concerning claim construction, infringement, and/or invalidity issues.

Google may rely on Sonos's or any inventor's admissions concerning the scope of prior art relevant to the Asserted Patents; the patent prosecution histories for the Asserted Patents; any deposition testimony of the named inventors on the Asserted Patents; and the papers filed and any evidence submitted by Sonos in connection with this litigation. For example, Google reserves the right to further assert that the Asserted Claims are invalid under 35 U.S.C. § 102(f) in the event that Google obtains additional evidence that the named inventors did not invent (either alone or in conjunction with others) the subject matter claimed in the Asserted Patents. Should Google obtain additional evidence, it will provide the name(s) of any new person(s) from whom and the circumstances under which the claimed invention or any part of it was derived.

Prior art not included in this disclosure, whether known or not known to Google, may become relevant. In particular, Google is currently unaware of the extent, if any, to which Sonos will contend that limitations of the Asserted Patents are not disclosed in the prior art identified by Google. To the extent such an issue arises, Google reserves the right to identify other references that would render obvious the allegedly missing limitation(s) of the disclosed device or method. Further, because discovery has only recently begun and because Google has not yet completed their search for or analysis of relevant prior art, Google reserves the right to revise, amend,

and/or supplement the information provided herein, including identifying, charting, and relying on additional references, should Google's further search and analysis yield additional information or references, consistent with the Federal Rules of Civil Procedure.

Additionally, because third-party discovery is not yet complete, Google reserves the right to present additional items of prior art under 35 U.S.C. §§ 102(a), (b), (e), and/or (g), and/or § 103, located during the course of such discovery or further investigation, and to assert invalidity under 35 U.S.C. §§ 102(c), (d), or (f), to the extent that such discovery or investigation yields information forming the basis for such invalidity. For example, Google expects to issue subpoenas to, and receive information from, third parties believed to have knowledge, documentation, and/or corroborating evidence concerning some of the prior art listed below and/or additional prior art. These third parties include, without limitation, the authors, inventors, vendors, or assignees of the references listed in these disclosures.

Google further reserve the right to modify or add additional contentions in the event that Sonos provides amended infringement contentions and to the extent the Court orders or allows Sonos to amend its infringement contentions.

Dated: March 5, 2021

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CERTIFICATE OF SERVICE

I certify that a true and correct copy of the above and foregoing document was served on counsel for plaintiff Sonos, Inc. via electronic delivery on March 5, 2021.

/s/ Nima Hefazi

Nima Hefazi